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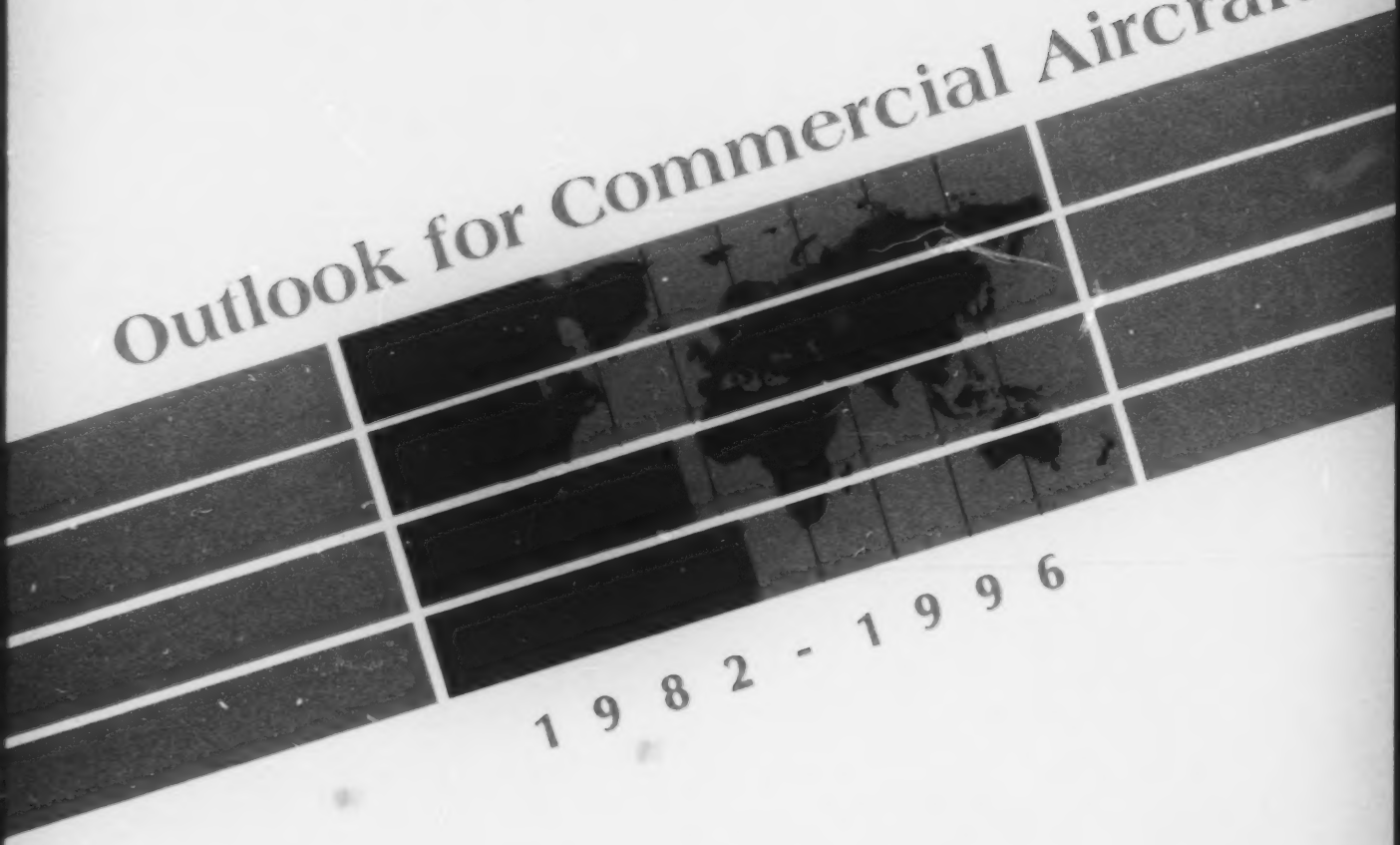
Outlook for Commercial Aircraft



1982-1996

Comments and questions may be addressed to Advanced Market Planning (18-68),
Douglas Aircraft Company, 3855 Lakewood Boulevard, Long Beach, CA 90846, U.S.A.

JULY 1982

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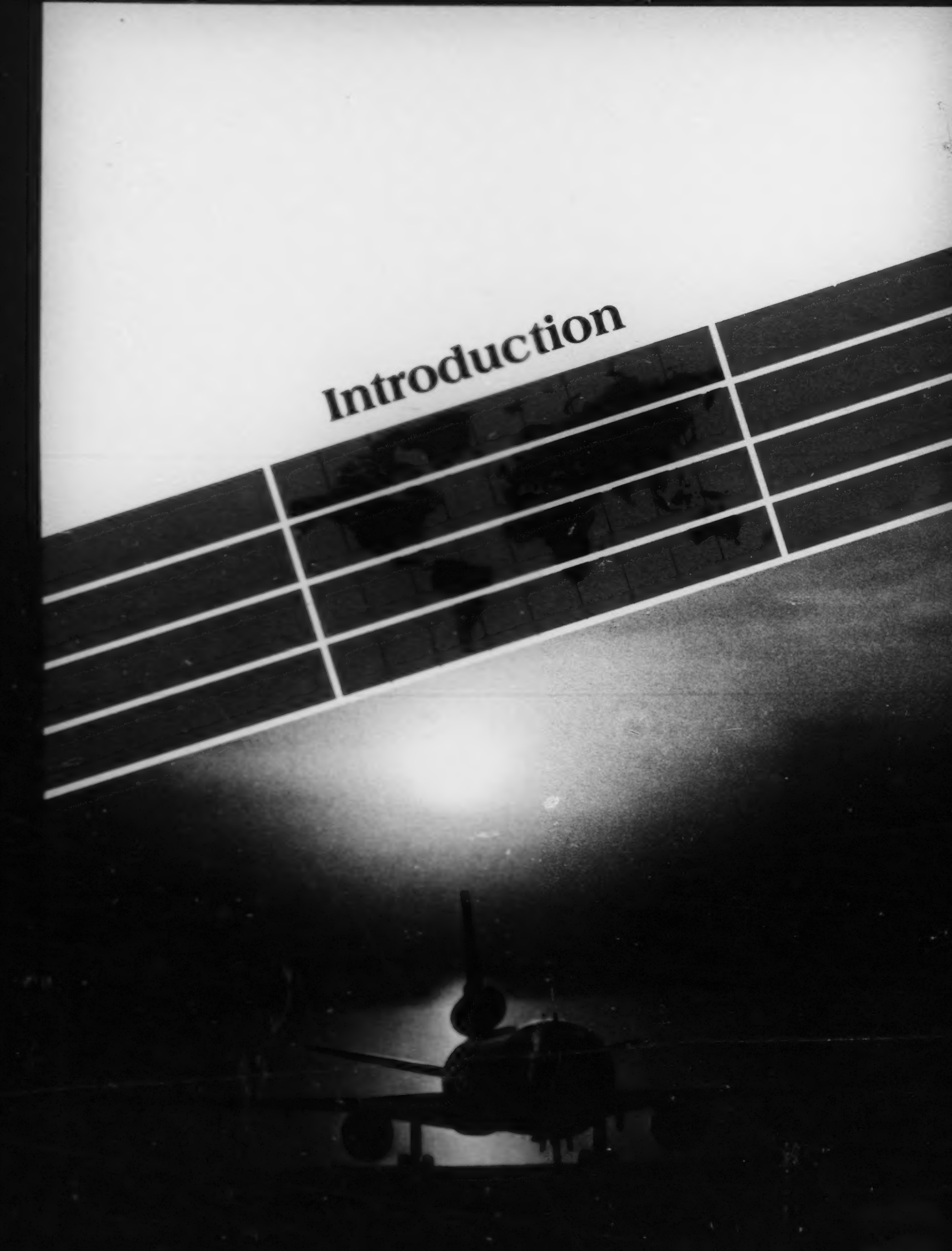
Introduction

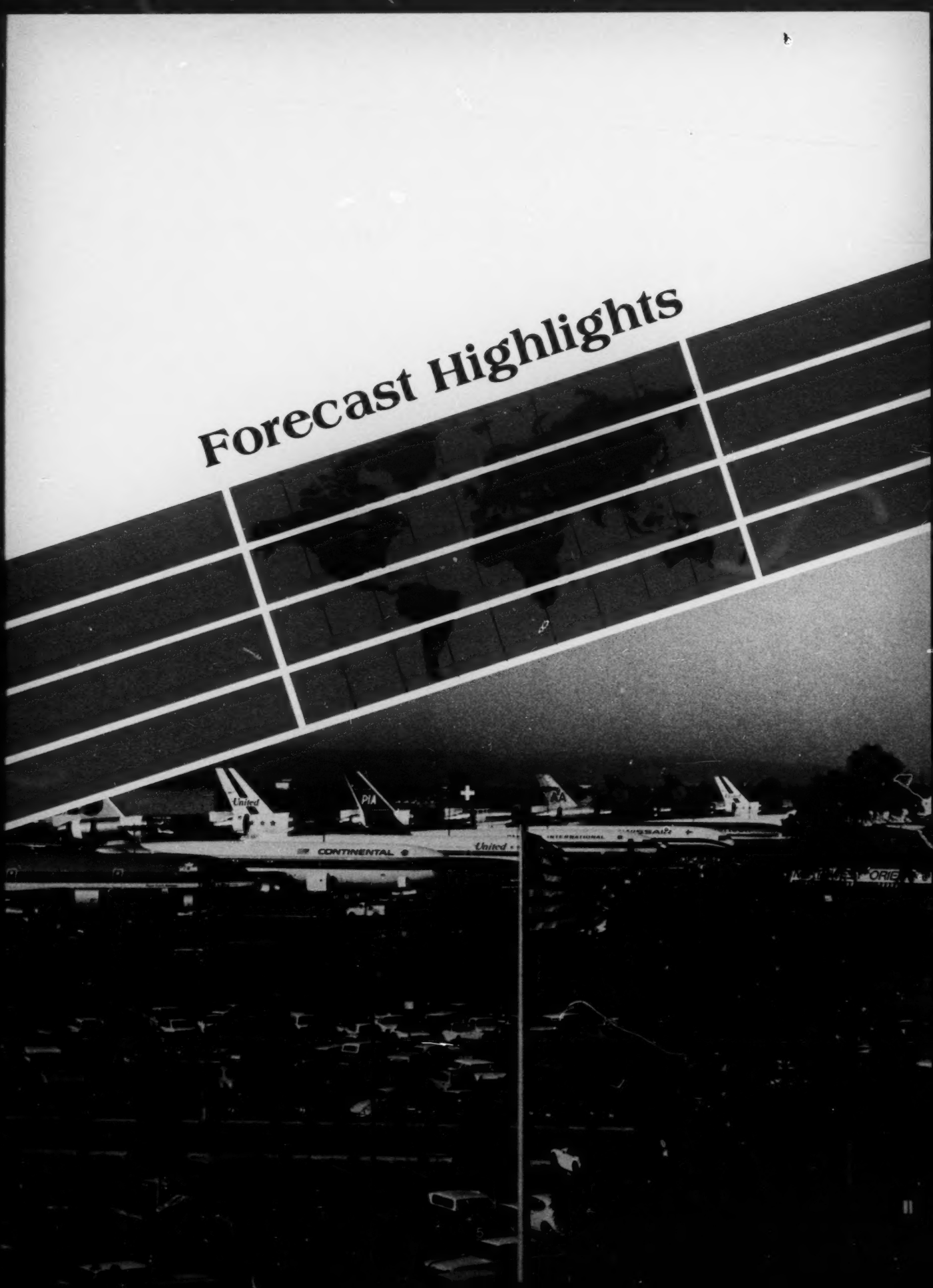


INTRODUCTION

This report summarizes the results of the Douglas Aircraft Company's 1982 commercial air transportation 15-year forecast covering the period 1982 through 1996. The results pertaining to the passenger sector of the industry are presented in three sections representing detailed forecasts for traffic, capacity and fleet. A fourth section of the report gives a detailed traffic and fleet forecast for the cargo sector. Appendices provide definitions, summary forecast data, a list of the airlines studied and a description of the econometric approach used for traffic forecasting.

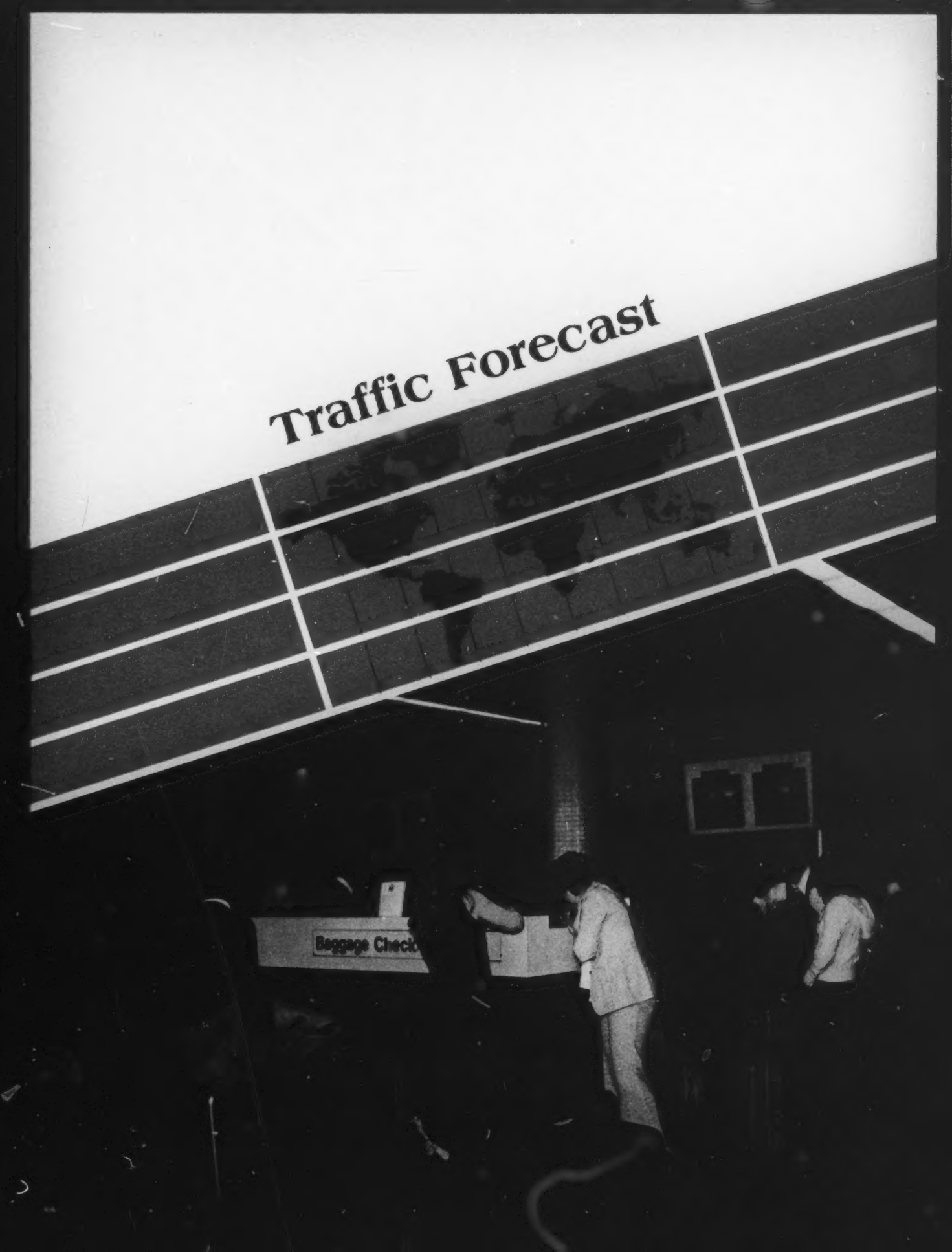
Characteristics such as size, marketing philosophy, financial status, route structure, and fleet mix differ extensively among airlines. This fact necessitates the forecasting of aircraft requirements by analyzing each carrier individually. The approach used allows for a sufficient depth of analysis, so that reasonable estimates of future aircraft needs can be made, and is capable of handling over 200 carriers efficiently. The fleet operated by these carriers currently consists of 6320 passenger and freighter aircraft. For a more detailed discussion of the approach, refer to the Approach subsection of the four main report sections.

Forecast Highlights

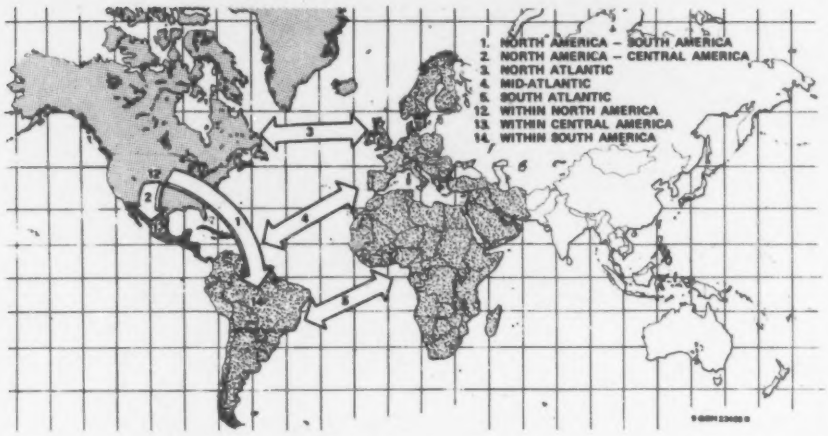


FORECAST HIGHLIGHTS

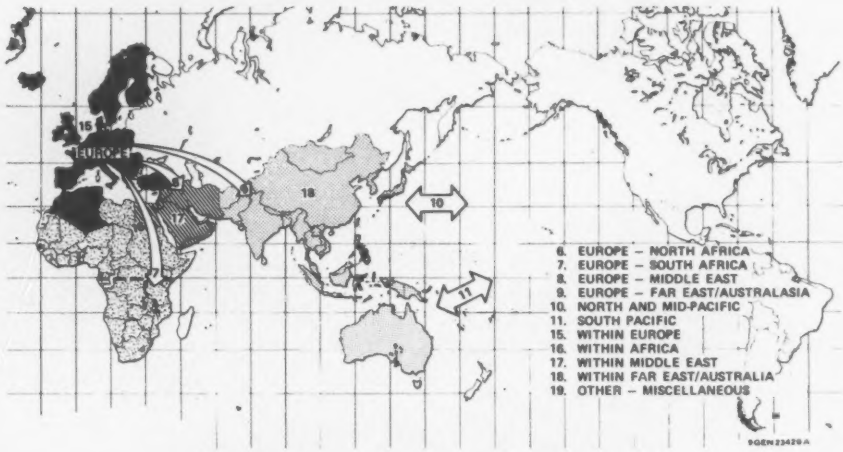
- 197 airlines were individually analyzed to forecast the passenger and cargo traffic, the capacity requirements, and the aircraft that will be required over the next 15 years.
- Expressed in scheduled revenue passenger kilometers (RPK) the 1981 passenger traffic generated by the airlines in the study group is within one percent of the estimated 1981 ICAO scheduled international and domestic traffic (excluding the USSR and PRC). The 1981 year-end fleet for the study group carriers includes 5232 jet passenger, 717 feeder/ nonjet passenger, and 371 freighter/convertible-freighter aircraft.
- Total all-service passenger traffic for these carriers is forecast to increase from 1044 billion RPKs in 1981 to 2613 billion RPKs by 1996, an average annual RPK growth rate of 6.3 percent. The average load factor will increase from 61.7 percent in 1981 to 67.9 percent in 1996. This will result in an average annual capacity (available seat kilometer (ASK)) growth rate of 5.6 percent.
- Total all-service cargo traffic (both all-freight and belly-pit) is forecast to grow from 34 billion revenue tonne-kilometers (RTK) in 1981 to 100 billion RTKs by 1996, an annual growth rate of 7.4 percent.
- Traffic growth together with replacement of retired aircraft will create a market for approximately 4500 passenger jet, 343 feeder/nonjet, and 409 freighter aircraft by 1996. These aircraft are in addition to almost 1350 aircraft already ordered or under option.
- The additional passenger aircraft (including orders and options) will generate 72 percent of the total capacity (ASK) required by 1996 and represent a capital requirement of $238 billion in 1982 dollars.


Traffic Forecast

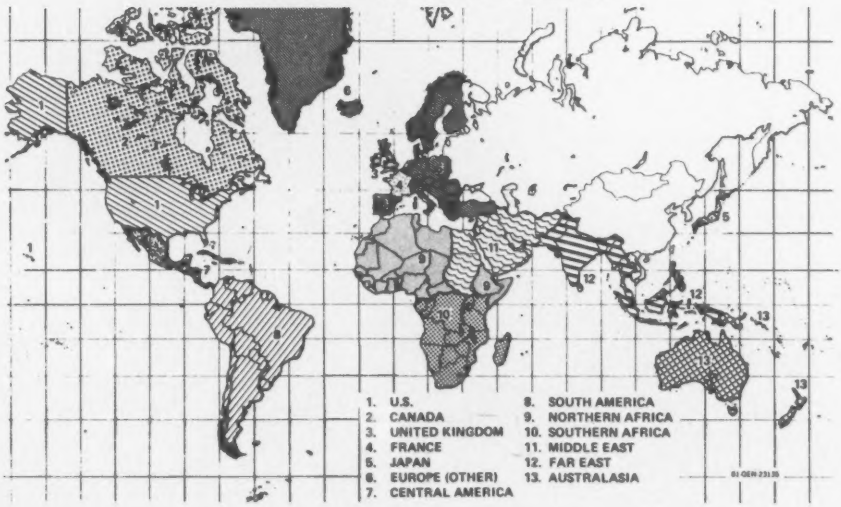
INTERNATIONAL REGIONAL TRAFFIC



INTERNATIONAL REGIONAL TRAFFIC



DOMESTIC REGION TRAFFIC



TRAFFIC FORECAST

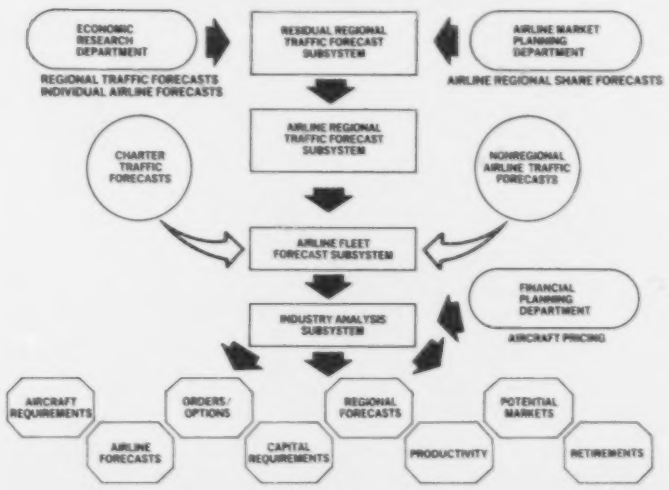
APPROACH

Because capacity and fleet requirements depend directly on traffic demand, a considerable proportion of the long-term planning effort was dedicated to producing passenger and cargo traffic forecasts for the 197 carriers in the study. Following IATA definitions, historical scheduled air traffic for approximately 160 carriers was divided into 19 international regional flows plus 13 regional areas representing domestic service. Econometric models (see Appendix B, Econometric Approach) were used to forecast the growth of each regional traffic flow and of each domestic region in terms of annual scheduled revenue passenger-kilometers and scheduled revenue tonne-kilometers for each study year*.

Of the 160 airlines, 50 major carriers had specific econometric and airline planning models developed to forecast the regional traffic growth.

LONG-TERM FORECAST SYSTEM

ADVANCED MARKET PLANNING GROUP



In order to forecast the regional growth of each of the remaining carriers (approximately 110) having historical scheduled regional traffic, the residual traffic for each region was calculated as the difference between the macrolevel regional forecast and the total of the major carrier regional forecasts. This residual traffic was then allocated to the 110 carriers on the basis of expected market share within each region in which a particular airline operates. This participation level was based on estimates of the airline's historical involvement in the region and modified by information on planned changes in the future activities of the carrier or its competitors.

*For a detailed presentation of the economic forecast results, refer to Report No. C1-805-6907A, 'Outlook for the Eighties', February 1982, available from the Economic Research Department, Douglas Aircraft Company.

After determining the regional scheduled traffic for these carriers, the traffic was accumulated to obtain each carrier's total system scheduled traffic.

Nonscheduled traffic for these carriers was forecast at the total system level, with consideration given to the expected long-term trend of charter service gradually declining as a percentage of total service for each carrier.

For the remaining carriers in the study (approximately 40) that are essentially charter operators or for which historical scheduled regional traffic was not available, total system traffic was forecast from historical trends to grow at rates somewhat lower than for the scheduled carriers.

In order to convert passenger traffic demand projections into capacity requirements which future aircraft fleets must provide, it was necessary to project both scheduled and charter load factors for each airline in the study. Scheduled load factors were based on econometric projections of system-wide load factors for a selected set of carriers and reflect a gradual increase in load factors, matching historically high levels for the total world by the late 1980s. Load factors for charter service were maintained at the high levels typical of this sector of airline traffic.

SUMMARY OF THE TRAFFIC FORECAST

The growth of the world commercial air transportation industry is not expected to be at the high rates of the previous decade. Moderate rates are expected as the result of gradual growth in international markets where alternate forms of passenger transportation are essentially nonexistent. The past two-year period has seen the world airlines experiencing a downturn in traffic growth. The early 1982 world traffic appears to be experiencing a traffic turnaround and entering a slow recovery period. The projected growth rate for 1982 of about 5 percent hardly seems a recovery; however, the forecast increase of 375 billion revenue passenger kilometers (RPK) by 1986 over the 1981 level closely approximates the entire 1970 air traffic (ICAO traffic excluding USSR and PRC). A significant traffic increase is more evident over the 15-year study period of 1982 to 1996 where a 6.3 percent average annual growth rate translates into a traffic increase of 1568 billion RPKs. This increase is 150 percent over the 1981 total world traffic.

The combined international and domestic operations of the U.S. carriers in the study resulted in a 3.1 percent decline in traffic during 1981 in comparison with a 4.5 percent traffic increase for non-U.S. carriers. With the forecasted U.S. economy turnaround in the late 1982 period, the U.S. carriers should experience above average load factors and corresponding traffic increases. Expected growth rates will result in 1986 U.S. traffic 31 percent above the 1981 level.

Despite the decline in U.S. traffic, slow growth elsewhere, and low profit levels, it is difficult to determine, at this time, if the industry is at a low point, with follow-on recovery to long-term trends; or whether a significant departure from the long-term trend has taken place.

COMPARISON WITH THE 1981 FORECAST

Last year, the projected growth rate for 1981 for the world's airlines was 4 percent. A traffic slowdown for the second consecutive year resulted in an estimated growth rate in 1981 of 1.4 percent for an increase of only 14 billion revenue passenger kilometers. The forecast increase for 1981-1986 was 427 billion revenue passenger kilometers. The forecast increase for the same period is now 375 billion revenue passenger kilometers.

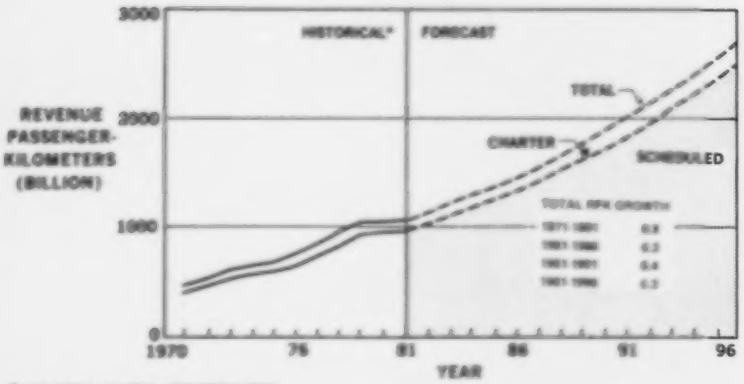
The growth rate for the combined international and domestic operations of the U.S. carriers was forecast in 1981 to be a no-growth year. The actual results show a decline of 3.1 percent. The projected growth of traffic from 1981 to 1986 was more than 34 percent. The projection for the same period is now 31 percent.

The world's charter traffic was forecast to increase 4.4 percent in 1981. The actual charter traffic declined for the third consecutive year. The total traffic decline over the three years is 14 percent. U.S. charter traffic has experienced a decline in traffic for the fourth consecutive year with a traffic decline over the four year period of 52 percent.

The major long-term difference in load factors between the two forecasts is that this year's U.S. forecast shows load factors reaching 68.5 in 1996 as compared with last year's forecast which forecast the 68.5 load factor by 1991.

TOTAL WORLD PASSENGER TRAFFIC

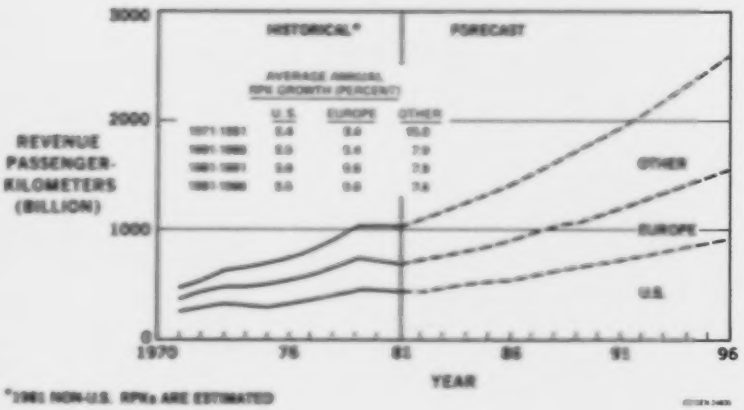
ANALYSIS OF 207 AIRLINES



*1981 NON-U.S. RPKs ARE ESTIMATED

- 1981 estimated all-service world traffic grew at only 1.4 percent (1.7 percent for scheduled traffic and -1.3 percent for charter traffic).
- 1982 traffic growth is forecast at 5 percent followed by a 7.7 percent increase in 1983.
- Long-term scheduled traffic growth is forecast at 6.5 percent annually versus 4.5 percent annually for charter traffic.

PASSENGER TRAFFIC — ALL SERVICES



*1981 NON-U.S. RPKs ARE ESTIMATED

- All-service traffic carried by U.S. airlines in international and domestic service declined by 3.1 percent in 1981 (-2.7 percent scheduled and -10.8 percent charter).
- The forecast is for 4.3 percent growth in 1982 in the U.S. followed by a 7.1 percent increase in 1983.
- 1981 all-service traffic carried by European airlines increased 3.2 percent compared with 4.5 percent for other non-U.S. carriers.
- Long-term non-U.S. traffic is forecast to increase 6.8 percent annually.

TRAFFIC (RPKs) GROWTH AND AREA SHARE

BY DOMICILED AREA

DOMICILED AREA (AIRLINES OF:)	AVERAGE ANNUAL GROWTH (%)				AREA SHARE (%)			
	1971-81	1981-86	1981-91	1981-96	1981	1986	1991	1996
AFRICA	12.5	6.7	6.6	6.4	2.7	2.7	2.7	2.7
CANADA	10.5	6.1	6.4	6.2	4.4	4.3	4.3	4.3
MIDDLE EAST	15.3	7.6	7.6	7.6	4.2	4.4	4.7	5.0
LATIN AMERICA	13.3	9.2	9.0	8.7	5.9	6.8	7.6	8.3
PACIFIC AND ASIA	18.2	8.2	8.0	7.8	16.2	17.8	18.9	19.9
EUROPE	9.4	5.4	5.6	5.6	26.7	25.5	24.7	24.1
U.S.	5.4	5.5	5.6	5.5	39.9	38.5	37.1	35.7
WORLD	8.8	6.3	6.4	6.3	100.0	100.0	100.0	100.0

CHARTER TRAFFIC (RPKs) AS A PERCENT OF TOTAL TRAFFIC

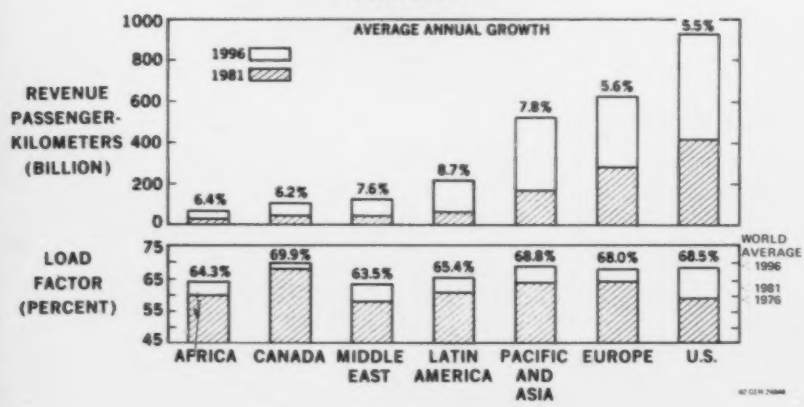
BY DOMICILED AREA

DOMICILED AREA (AIRLINES OF:)	ACTUAL		ESTIMATED	FORECAST		
	1971	1976	1981	1986	1991	1996
AFRICA	8.2	8.5	9.1	8.5	7.9	7.5
CANADA	12.5	20.7	22.1	23.7	23.7	23.9
MIDDLE EAST	6.2	3.2	4.3	3.8	3.4	3.1
LATIN AMERICA	1.1	2.7	1.8	1.5	1.2	1.0
PACIFIC AND ASIA	4.5	2.3	1.6	1.5	1.4	1.3
EUROPE	21.5	29.9	24.1	22.2	21.1	20.0
U.S.	13.6	10.3	4.2	3.9	3.4	3.0
WORLD	14.1	14.6	9.9	9.0	8.3	7.6
WORLD CHARTER RPKs (BILLION)	64.1	108.4	103.3	127.3	160.2	199.6

ALL-SERVICE TRAFFIC (RPKs) AND LOAD FACTORS

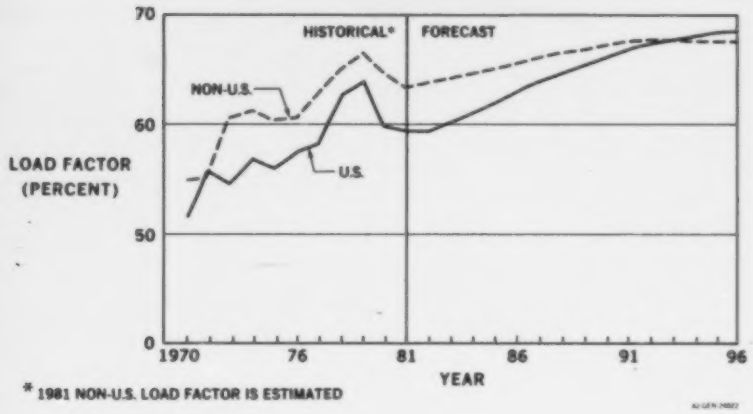
BY DOMICILED AREA

1981-1996



- The projected growth over the long-term is much lower than historical growth in all areas.
- Above average growth in the Middle East and Latin America is closely related to the oil industries in these regions.
- Declining charter traffic in the U.S. is the result of a low fare differential which makes most charter aircraft uneconomical at any load-factor.
- European and Canadian traffic is expected to retain its high proportion of charter service under the assumption that fare differential and seasonality traditions will be maintained.
- The decline in U.S. charter traffic amounted to almost 11 percent in 1981.
- The level of traffic carried by U.S. airlines will almost double by 1996.
- 1996 traffic carried by African and Latin American carriers will be 2 to 3 times as great as their 1981 levels.
- Relatively high 1981 load factors for European and Canadian carriers result from the high level of charter service.

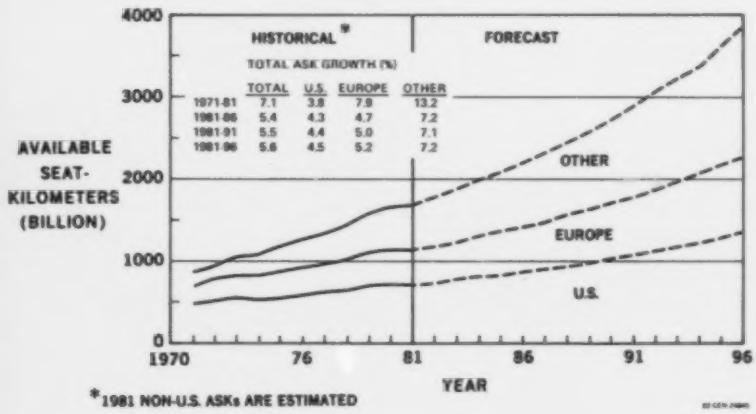
AVERAGE PASSENGER LOAD FACTOR



* 1981 NON-U.S. LOAD FACTOR IS ESTIMATED

- Estimated 1981 non-U.S. carriers' combined load factor declined by 1.5 percentage points compared with a decline of less than one percent in U.S. carriers' combined load factor.
- Due to high financing costs and their poor profit position, it is expected that the carriers will be adding capacity throughout the forecast at a slower rate than traffic growth. As a result, load factors for all carriers should increase with the U.S. carriers experiencing above average increases in a deregulated environment.

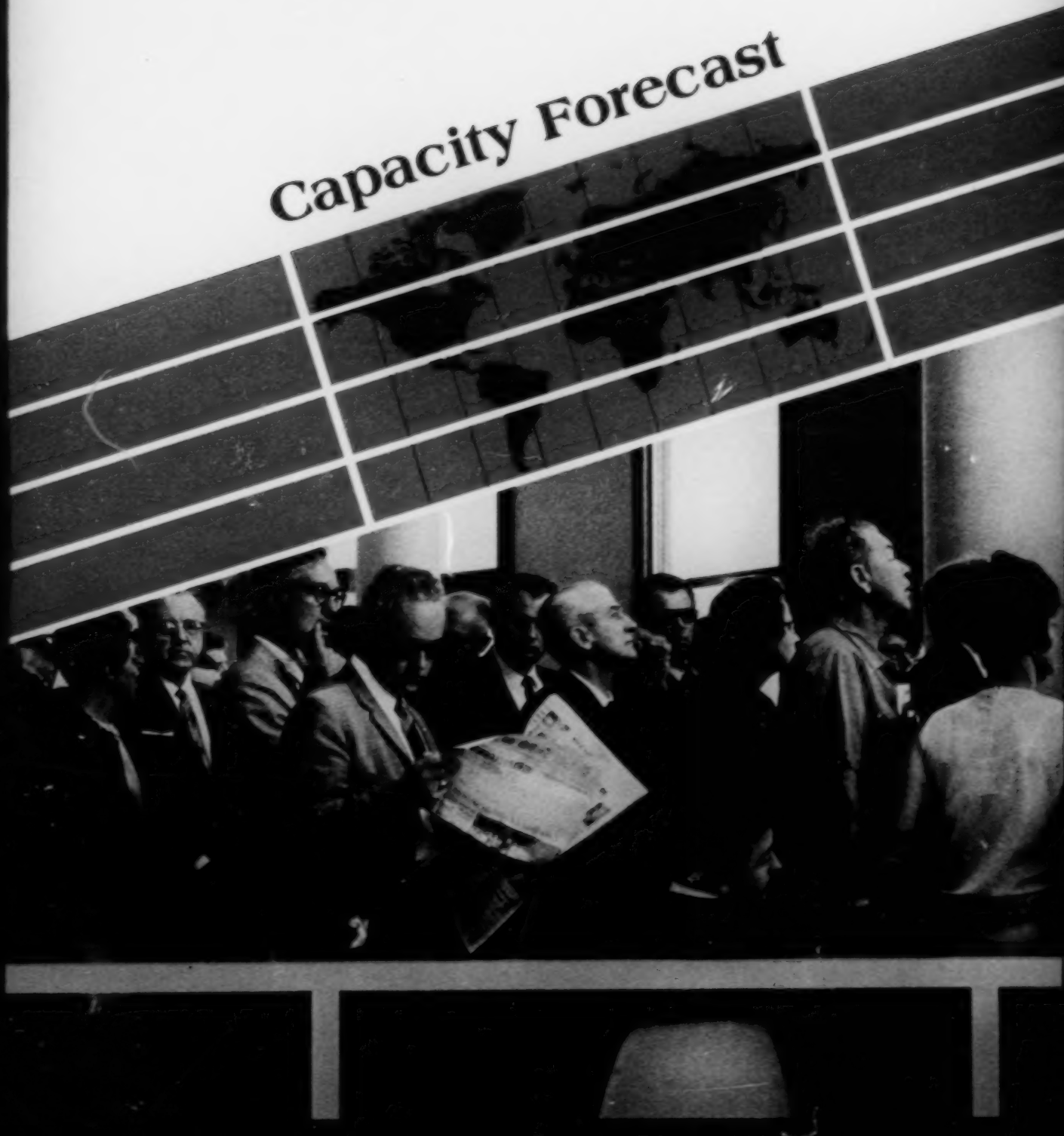
CAPACITY (ASK) REQUIREMENT — ALL-SERVICES



*1981 NON-U.S. ASKs ARE ESTIMATED

- 1981 world estimated all-service ASKs grew 2.5 percent (non-U.S. at 6.2 percent and U.S. declined at 2.4 percent).
- Over the next 15 years, air service will require almost 2.3 times today's available capacity.
- Over the long-term, available capacity will increase about 89 percent as fast as traffic, reflecting increasing load factors.

Capacity Forecast



CAPACITY FORECAST

APPROACH

After overall airline capacity needs in terms of available seat-kilometers had been forecast, an analysis was made to project the length of service of existing aircraft and to determine the impact of aircraft orders and options placed for future delivery. Aircraft retirements estimated as part of the detailed analysis of individual airlines were based on considerations of route system, equipment age, noise regulations, and economic productivity. As a general rule, it was assumed that DC-8-61 and -63 series aircraft would be re-engined and most noncomplying DC-9s and 727- 200s would be quieted to permit a normal lifetime of use. It was further assumed that 707s, standard-size DC-8s, and 727-100s would be retired by the mid-1980s from U.S. and many foreign carriers due to their noncompliance with noise regulations and decreasing economic performance resulting from rising fuel prices. Wide-body aircraft were assumed to be retired after 18 years.

A determination of the impact of available retired aircraft on future aircraft requirements was accomplished at a total industry, versus individual airline level, by assuming that a percentage of each different aircraft type will be sold to other carriers within the study group as "retained" aircraft. Narrow-body and 747-100 aircraft are assumed to remain in the fleet for an additional five years before being permanently retired. Other wide-body aircraft are retained throughout the forecast period: 18 years of initial service plus a 12 year "retained" period.

All known firm and conditional firm orders through early 1982 were included in the airline fleets. Most options were also included; however, some options were deleted if it were felt that delivery timing would create serious overcapacity problems for the carrier and, therefore, the airline would probably not convert the option to a firm order. To assist in the fleet analysis, ordered and optioned aircraft were grouped into "generic" classifications (see Appendix A, Definitions).

In addition to orders, options and retirements, productivity factors (i.e., utilization, block speed, seat capacity) were projected for the study period. In general, it was assumed that the productivity of existing aircraft would recover from its 1980-1981 low levels to the higher levels experienced in 1978 and 1979. Once attaining these higher factors, the productivity would remain constant throughout the forecast.

The difference between the capacity required by an airline and the capacity available in the future from aircraft on hand and on order resulted in a capacity gap.

SUMMARY OF THE CAPACITY FORECAST

Required capacity as measured by available seat-kilometers (ASKs) was forecast to grow at a rate less than revenue passenger-kilometers, as is evident from the forecast for continually increasing load factors. By 1996, total capacity required will approach 3850 billion ASKs or almost 2.3 times available capacity in the world today.

In general, retirements in the early 1980s are above recent averages because of the need to replace those aircraft introduced in the early sixties which have reached the end of their economical useful life. However, after these aircraft are replaced by fuel efficient, quiet, more productive aircraft, the retirement rate from 1988 on is substantially below the average of the 1970s. Overall the rate at which aircraft are retired during the forecast period, 4.2 percent of previous year-ending fleet, is somewhat below the 5.0 percent rate of the past 10 years. Retirements through 1996 reduce the capabilities of today's fleet by 36 percent of ASK capacity and 68 percent of aircraft units, although this retired capacity is only 16 percent of the total capacity required in 1996.

The airlines' efforts to replace less efficient aircraft and meet traffic growth has already resulted in the placement of orders and options for almost 1300 aircraft for delivery during the 1980s. The combination of capacity made available by these orders/options, plus capacity provided by today's aircraft remaining in service, amounts to over 40 percent of the total 1996 capacity requirement. The primary purpose of the long-term forecast is the determination of the aircraft types (and numbers) that will be likely candidates to fill the remaining 60 percent of the capacity requirement.

An airline's productivity (measured in available seat-kilometers generated) is a function of the productivity of its constituent aircraft types and the mix of these types in the airline's fleet. During the forecast the average productivity will increase because of the addition of new aircraft relatively larger than those being replaced, not because aircraft were flown additional hours — in fact, hours were held essentially constant throughout the forecast for each aircraft type. Between 1981 and 1996 the changing fleet mix resulted in a 63 percent improvement in productivity per average passenger aircraft as compared with the 1981 average. Over the forecast period, the capacity (available seat-kilometers) requirement is forecast to increase at an average rate of 5.6 percent per year. To sustain this rate, the number of aircraft are forecast to increase at 2.2 percent, average seat size at 2.0 percent, average utilization at 0.9 percent and average block speed at 0.4 percent per year.

COMPARISON WITH THE 1981 FORECAST

Although changes were made to the retirement guidelines, the retirements as a percentage of the total world's fleet have remained essentially unchanged between the two forecasts. The order and option data for

1982 and beyond also stays relatively constant with the proportion between the generic aircraft types following the same pattern. However, this may disguise the fact that there has been no comparable increase in the number of bookings from a year ago. (The 436 aircraft delivered in 1981 brought the 1981 backlog to 1700 aircraft.) The fact that additional orders were not placed in 1982 does not imply that additional equipment is not needed but rather that the financial condition of the airlines has not allowed them to invest the capital necessary for equipment purchases.

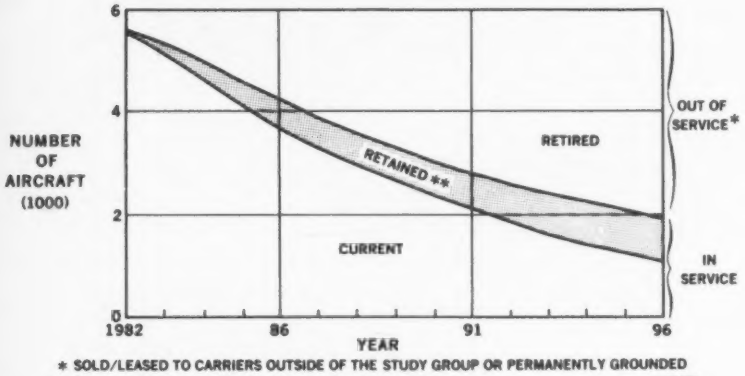
In line with the forecast of a reduced requirement for capacity in 1995 over last year's forecast, the total fleet capacity provided in 1995 will be 7.2 percent less than was forecast a year ago.

Note: Estimated active aircraft fleet counts resulting from retirements, orders, options and "generic" aircraft follow a pattern not experienced in previous forecasts. In prior years, forecast fleet counts have shown annual increases but this year's forecast indicates that the 1981 fleet count will not be exceeded until 1989 — i.e., during this period the rate at which aircraft are retired/grounded will exceed the rate at which aircraft enter the fleet.

PASSENGER AIRCRAFT

EFFECTS OF RETIREMENT ON 1981 FLEET

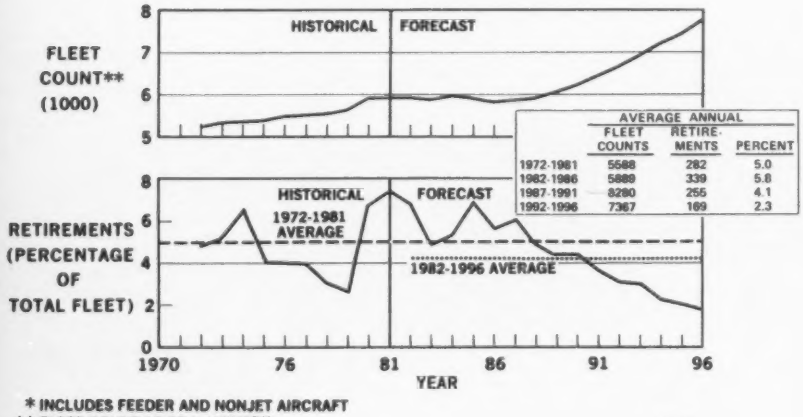
5949 AIRCRAFT IN YEAR-END 1981 FLEET



* SOLD/LEASED TO CARRIERS OUTSIDE OF THE STUDY GROUP OR PERMANENTLY GROUNDED

** SOLD/LEASED TO CARRIERS WITHIN THE STUDY GROUP

RETIREMENTS AS COMPARED WITH YEAR-END FLEET COUNT *

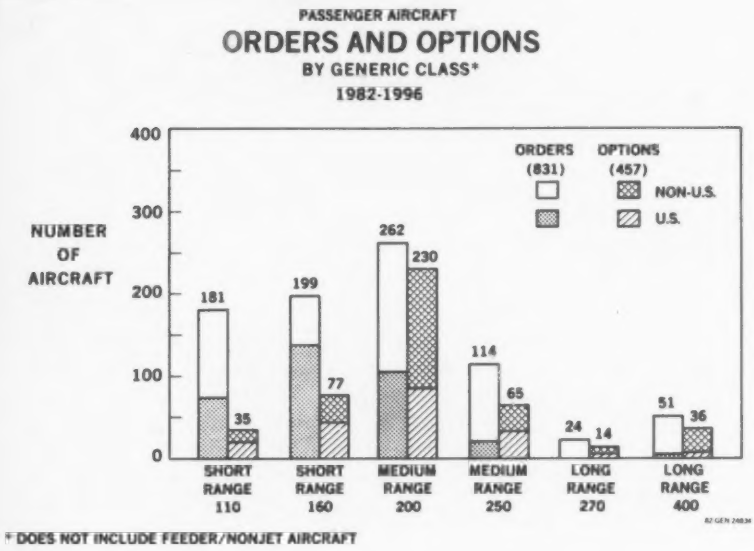


AVERAGE ANNUAL	FLEET COUNTS	RETIREMENTS	PERCENT
1972-1981	5588	282	5.0
1982-1986	5888	339	5.8
1987-1991	8280	255	4.1
1992-1996	7367	169	2.3

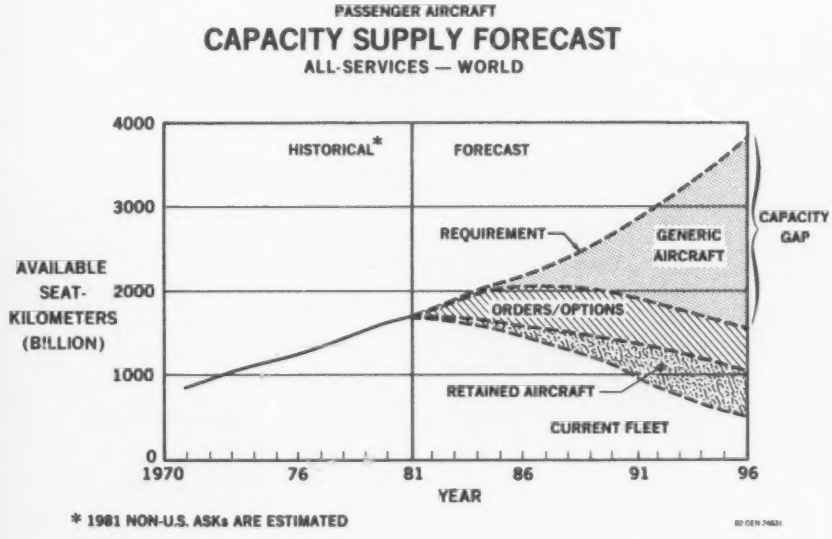
* INCLUDES FEEDER AND NONJET AIRCRAFT

** FLEET COUNT AS OF 1 JANUARY

- Retained aircraft are assumed to remain in service for five years before being permanently retired.
- Wide-body aircraft are retained throughout the forecast with the exception of the 747-100.
- The retained/retired ratio ranges from 29 percent in the early 1980s to 21 percent at the end of the forecast.
- 29 percent of the 1981 fleet will be retired over the next 5 years — 68 percent by 1996.
- The forecasted 4 percent over-all fleet retirement figure closely parallels the historical rate but appears to have a longer cycle.
- Significant trends, i.e., airline amalgamation, high proportion of growth in the international area, and accompanying use of larger, longer range aircraft, may alter retirement plans.
- Near-term changes in the forecast relating to fuel prices and reengining programs could change the timing of the retirements; however, the number of units retired over the 15-year forecast period would not change significantly.
- Year end fleet counts include generic aircraft (See Appendix A).



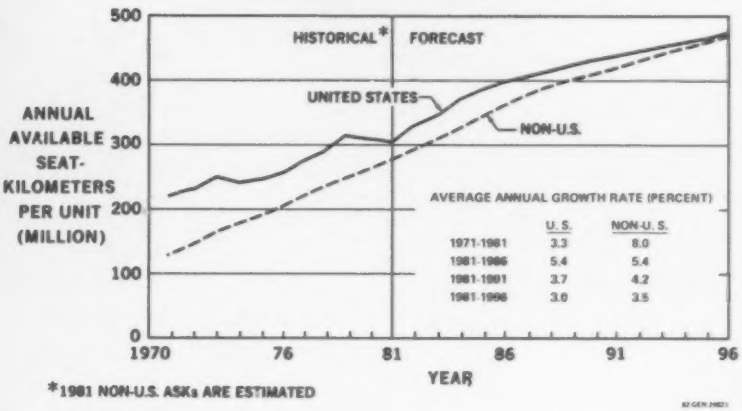
- The U.S. has 55 percent of the orders and 57 percent of the options for the Short-Range 110 and 160 classes.
- Carriers domiciled outside of the U.S. have placed 97 percent of the orders and 76 percent of the options for long-range aircraft.
- The number of orders and options on the books has declined since last year; orders declined 25 percent, options 19 percent.
- See Appendix A for definitions of groupings.



- Beginning in 1986, and for each year thereafter, between 65 and 100 percent of additional annual capacity has to be provided by generic aircraft.
- Of the total capacity requirement over the next 15 years, 60 percent is not yet on the books.
- 22 percent of additional capacity is for replacement of retired aircraft and the rest is for growth in the industry.

PASSENGER AIRCRAFT

PRODUCTIVITY GROWTH



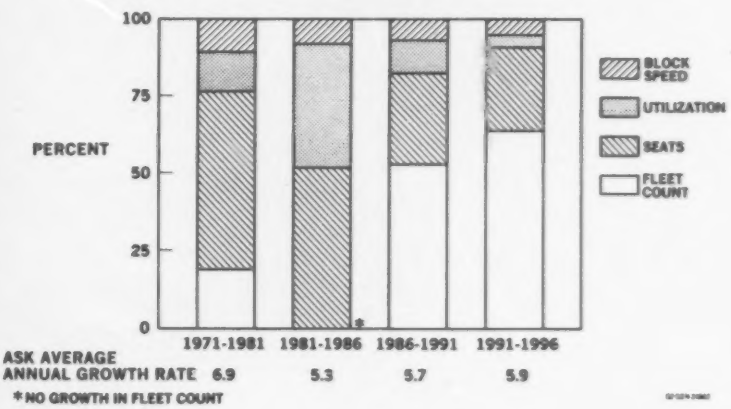
*1981 NON-U.S. ASKs ARE ESTIMATED

- The decrease in U.S. aircraft productivity in 1974 and 1980 was the result of the carriers' response to rapid increases in fuel prices.
- In 1981, the average aircraft operated by U.S. carriers was 10 percent more productive in terms of ASKs per unit than its non-U.S. counterpart, a drop of 8 percentage points from the 1980 numbers.
- Comparing total fleets, non-U.S. aircraft fly 10 to 15 percent more seats per aircraft than their U.S. counterparts; however, non-U.S. utilization was 22 percent lower in 1981 and 16 percent lower in 1996.

PASSENGER AIRCRAFT

CAPACITY GROWTH PROPORTIONED BY FACTORS

TOTAL WORLD



*NO GROWTH IN FLEET COUNT

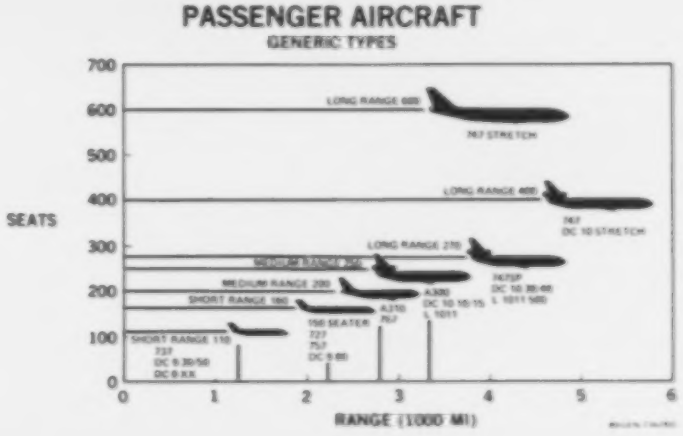
- ASK growth is primarily due to the addition of larger aircraft in a more productive fleet mix, i.e., seating capacity increases account for 60 percent of the total productivity increase per aircraft.
- After no fleet growth during much of the 1980s, fleet counts increase due to replacement of retired aircraft and anticipated growth.
- The percent of the seat factor remains constant at 27 to 30 percent over the last 10 years of the forecast after over 50 percent shares in earlier years.

Fleet Forecast

FLEET FORECAST

APPROACH

The gap which results from the difference between the capacity required by an airline and the future capacity available from aircraft on hand and on order is satisfied by combinations of generic classes of passenger aircraft. These generic classes are delineated further in Appendix A, Definitions. A generic classification is defined as a broad category of aircraft based on seating capacity and range characteristics. This category of aircraft is used to replace retired aircraft and/or to provide for anticipated growth. The generic classifications are illustrated below:



The appropriate combination of generic types for each airline was determined based on a variety of fleet planning factors:

Aircraft assignments

- Where different types are used
- Changes in future usage
- Historical percentages of fleet capacity

Carrier route structure

- Existing routes
- New route expansion

Carrier equipment actions

- Purchases and options
- Retirements
- Configuration changes

Fleet planning analysis

- Douglas studies
- Carrier fleet plans
- Sales contacts

SUMMARY OF THE FLEET FORECAST

The industry-wide aggregation of generic aircraft, which were allocated for each airline to meet its additional capacity requirements, indicated a requirement for more than 5380 jet aircraft over the next 15 years, a requirement which was reduced to 4500 aircraft by the retention of certain retired aircraft. This market for generic aircraft is dominated by those aircraft that were expected to provide service over markets currently served by DC-9, 737, 727 and BAC-111 aircraft — i.e., almost 61 percent of the total generic jet aircraft market, or more than 2700 units, are required. Medium- and long-range wide-body aircraft approximately split the remaining 39 percent.

This dominance, as measured by units, of the Short-Range 110- and 160-class aircraft was also apparent when the entire 1996 industry fleet of 8060 aircraft was considered. These two classes represented 47 percent of the total with medium-range (25 percent), long-range (21 percent) and feeder (7 percent) making up the balance.

A different perspective of the relative importance of the various aircraft classes is obtained by comparing capacities in terms of available seat-kilometers rather than units. Using this measure, by 1996 the short-range aircraft are expected to contribute 25 percent, the medium-range 25 percent, and the long-range class 49 percent of the total. The combined Short-Range 110 and 160 figure represents a decline from the range of 36 to 38 percent experienced during the period 1971 to 1981, with almost all of the reduction occurring in the Short-Range 110 class. The expected change is due to the continuing upward pressure exerted on average seat size by the combined effect of traffic growth, frequency growth constraints, and economic factors projected through the forecast period. This pressure translates into a continuing shift, in relative terms, from the Short-Range 110 to the Short-Range 160, and, in turn, from the Short-Range 160 to the Medium-Range 200. The net result is for the Short-Range 160 share of the total available seat-kilometers to remain essentially unchanged through the forecast period.

COMPARISON WITH THE 1981 FORECAST

In addition to a moderate reduction of approximately 7 percent in required capacity, significant changes were made in the productivities of generic aircraft and hence, the units required between generic classes. Productivities for the generic aircraft in the 1981 forecast were held at the same values for all of the individual airlines. However, generic aircraft productivities in the 1982 forecast were modified for each individual airline to reflect the historical usage and seating of aircraft and were then held at these values throughout the forecast period.

The 7 percent reduction in required capacity in conjunction with a 2 percent increase in the average productivity per aircraft (includes both specific and generic aircraft types) resulted in a 9 percent decline in the total 1995 fleet. The generic aircraft expressed as a percentage of the 1995 fleet decreased from 59 percent in the 1981 forecast to less than 57 percent in the 1982 forecast.

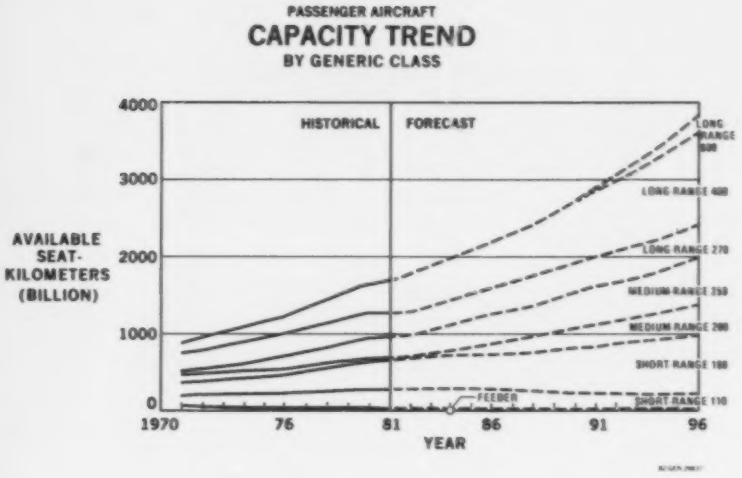
COMPARISON WITH THE 1981 FORECAST (Continued)

A comparison of the cumulative 1995 additional aircraft requirements, expressed as a percentage of the total additional aircraft requirements, reveals a redistribution within the Feeder, Short-Range 110 and Short-Range 160 classes. A slight reduction in the proportion of feeder aircraft (primarily due to the replacement of retired feeder aircraft with larger equipment) combined with declines in the Short-Range 160 class resulted in moderate growth in the Short-Range 110 category. This growth reflects continuing adjustments which have been made to the Short-Range 110 class during the last two forecasts to provide for both adequate replacement and growth of this market.

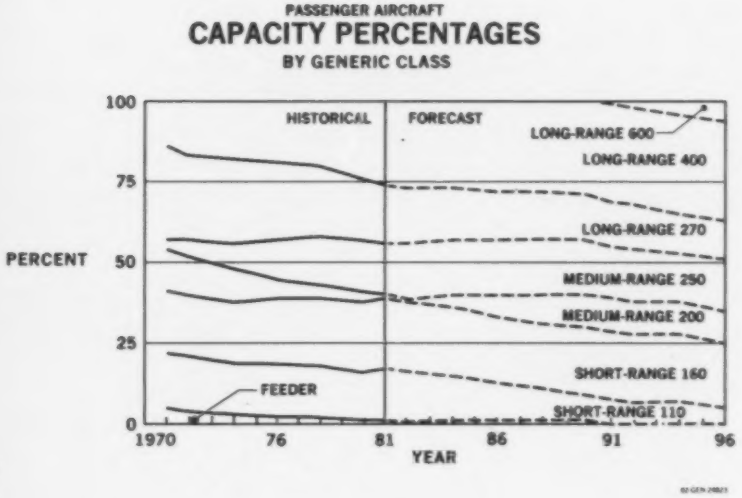
The percentage allocated to the Medium-Range 200 and 250 class aircraft declined slightly and was caused by redistribution to the short- and long-range categories.

Long-range aircraft experienced a slight increase, with growth in the Long-Range 400 and 600 categories occurring at the expense of the Long-Range 270 category. Reductions in the Long-Range 270 class occurred as the result of the reassignment of additional aircraft requirements to the Long-Range 400 class and the replacement of retiring Long-Range 270 equipment with relatively larger aircraft. Growth within the Long-Range 600 category was derived from the addition of the Pacific and Asia region in the allocation of Long-Range 600 equipment; previously, the allocation of this equipment had been limited to carriers in the U.S. and European regions.

The 9 percent decrease in additional passenger jet aircraft requirements when offset by using 1982 constant dollars (instead of 1981 dollars) results in a 3 percent larger capital requirement for 1982-1995 than was forecast a year ago. A comparison of the capital requirements between the two forecasts shows that the proportion contributed by options has remained at over 9 percent, while orders have increased from 11 to 14 percent and generic aircraft have declined from over 79 percent to less than 77 percent.



- The Medium-Range 200 class of aircraft is an example of almost complete replacement of existing aircraft by new generation aircraft.
- The need for Long-Range 600 aircraft in 1991 increases to 117 in 1996, comprising 6 percent of the total ASKs by 1996.

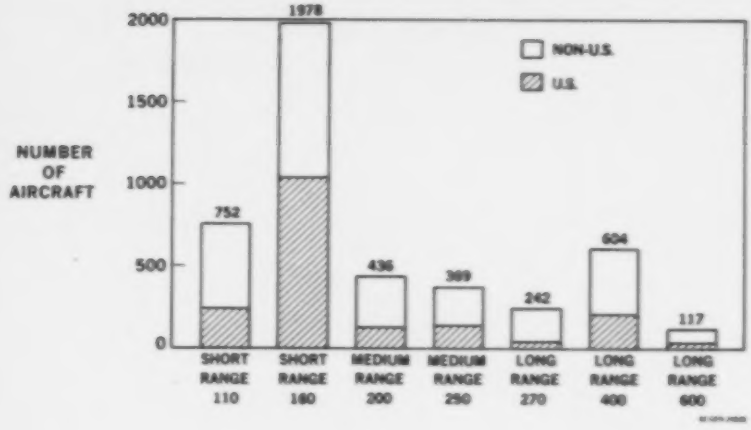


- The capacity provided by generic aircraft remains approximately divided between short-to medium-range aircraft and long-range aircraft.
- Short-Range 110 and 160 capacity is reduced from 38 percent to 25 percent of the total during the forecast period.

PASSENGER AIRCRAFT MARKET

GENERIC AIRCRAFT BY DOMICILED AREA

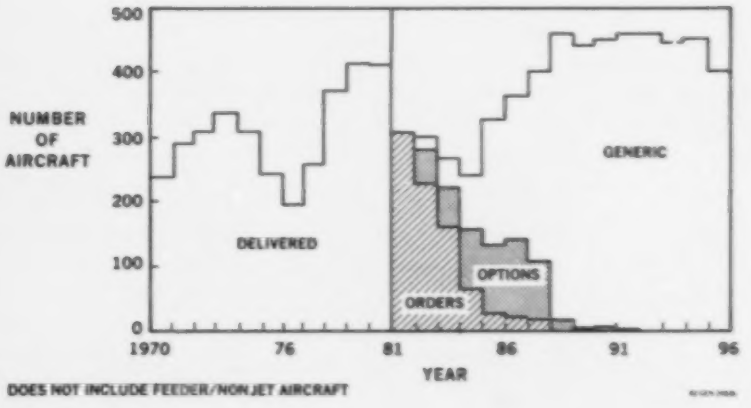
1987-1996



- The U.S. demand accounts for 43 percent of the total world short- and medium-range generic aircraft requirement and 29 percent of the long-range requirement.
- Short- and medium-range aircraft account for 84 percent of the U.S. total generic requirement and 75 percent of the non-U.S. requirement.
- Non-U.S. demand exceeds 150 percent of U.S. demand in all categories except the Short-Range 160.

PASSENGER AIRCRAFT DELIVERIES

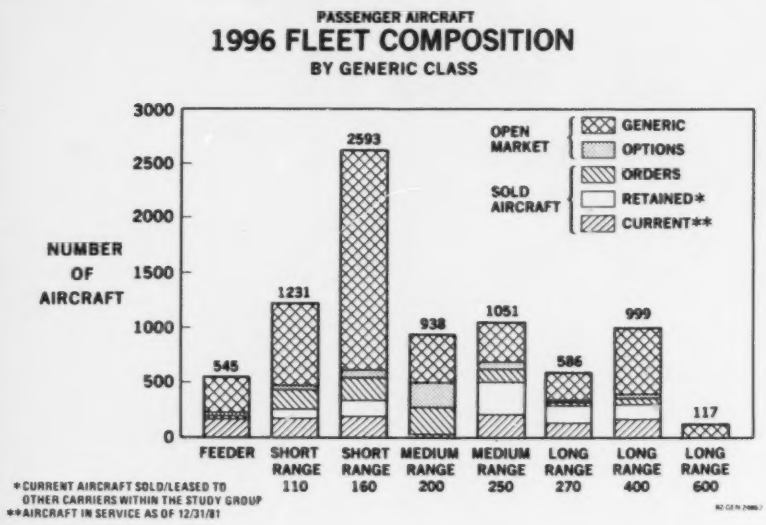
1971-1996



DOES NOT INCLUDE FEEDER/NON JET AIRCRAFT

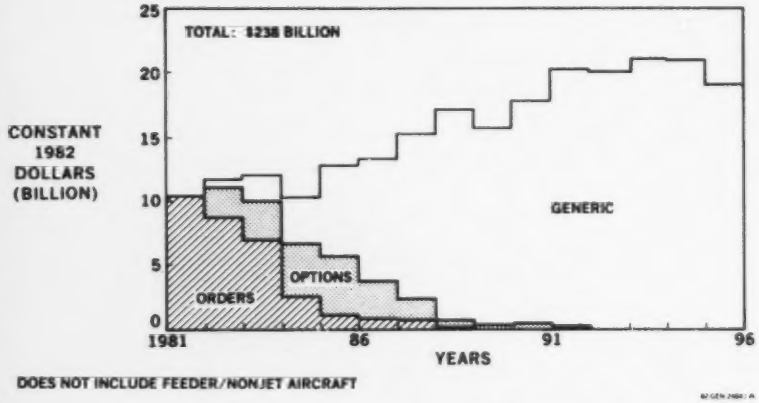
- To provide the total capacity required by 1984, approximately 900 aircraft need to be delivered, for which less than 700 orders have been placed.
- Total aircraft already ordered represent less than 15 percent of total deliveries required over the next 15 years.

FLEET ANALYSIS (Continued)



- Approximately 66 percent of the units needed by 1996 have not yet been sold — i.e., they present an open market.
- The Short-Range 160 generic class represents 39 percent of the total open market but produces only 20 percent of total 1996 capacity (ASKs). The Long-Range 400 class represents less than 13 percent of the open market but 31 percent of capacity.

NEW PASSENGER AIRCRAFT CAPITAL REQUIREMENTS 1982-1996



- Over the next 15 years, $238 billion (constant 1982 U.S. dollars) in capital will be needed to purchase the more than 5780 additional passenger jet aircraft that will be required.
- $31 billion of this total is necessary to purchase the more than 830 orders already placed.
- To meet this capital requirement for aircraft, airlines will rely heavily on internal cash generation.

Cargo Forecast

CARGO FORECAST

APPROACH

Scheduled cargo traffic was forecast using econometric models for each of the 19 international and 13 domestic IATA defined regions in terms of total revenue tonne-kilometers (RTK) and RTKs carried in "all-freight" service by aircraft dedicated to cargo service. Based on expected market shares for all airlines operating within each of the regions, individual airline regional cargo forecasts were developed. Accumulation of this regional traffic for each airline resulted in total system scheduled cargo traffic.

Nonscheduled freight traffic for each carrier was assumed to be all-freight cargo traffic and was forecast at rates below those for scheduled service.

Projections of combined all-service, all-freight RTKs were used as the measure of "capacity" because of the unavailability of available tonne-kilometer (ATK) data.

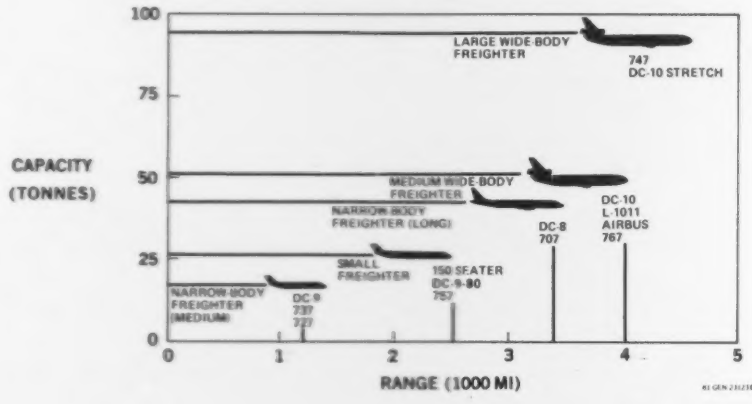
Near-term cargo aircraft retirements were estimated, as part of the detailed analysis of individual airlines, to reflect the relatively high level of aircraft retirements over the next five years due to equipment age, noise regulations and economic productivity. Based on the assumption that the more productive aircraft will be re-engined or fitted with "hush" kits, there are only a few retirements of cargo aircraft from 1986 through 1996.

In addition to orders, options and retirements, productivity factors (i.e., utilization, block speed, cargo density, cargo volume and cargo load factor) were projected for the study period. In general, these factors were assumed to remain constant at historically high levels.

The cargo "capacity gap" was calculated as the difference between the all-service, all-freight RTKs required by the airline and the RTKs available in the future from aircraft on hand and on order.

This gap is satisfied by combinations of five generic types of cargo aircraft based on a variety of fleet planning factors (see Appendix A, Definitions).

CARGO AIRCRAFT
GENERIC TYPES



Generic freighter units were calculated with the assumption that they would be dedicated to cargo 100 percent of the time. In actuality, all-freight service is characterized by the use of a large number of convertible— freighters which may be used for passenger as well as cargo service. Consequently, the actual number of aircraft required to fulfill the RTK requirement will be greater than the generic units shown. How much greater will be more closely forecast when the effectiveness of the new generation aircraft as freighters and convertible-freighters can be determined.

SUMMARY OF THE CARGO FORECAST

During the 1970s, the cargo sector of the air transportation industry grew at the very moderate rate of slightly more than 9 percent per year as compared with more than 10.6 percent per year for the passenger sector. During the forecast period, these relative positions are expected to be reversed as all-service cargo traffic, in revenue tonne-kilometers (RTK), is expected to increase 7.4 percent annually which, by 1996, will result in almost three times the number of RTKs flown in 1981.

The scheduled all-freight portion of cargo traffic is projected to grow at 7.5 percent annually as compared with a 7.7 percent annual growth projected for belly-pit cargo traffic. This results in only a slight reduction of the all-freight share from 39 percent to 38 percent by 1996.

The dominance of the all-freight service by large, wide-body freighters is expected to continue. In 1981 these aircraft, comprising 18 percent of the units, flew 56 percent of the all-service, all-freight RTKs. By 1996, the comparable figures will be 29 percent of the units and 60 percent of the RTKs. The next largest share of the all-freight RTKs will be a 24-percent share provided by the medium-capacity, wide-body freighter class, which will also provide 24 percent of the units.

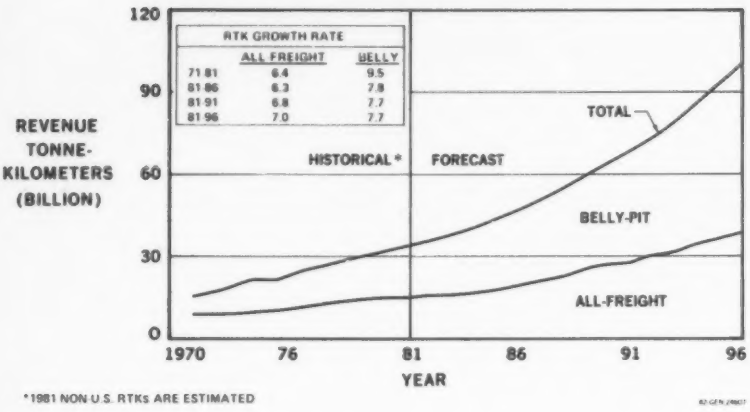
COMPARISON WITH THE 1981 FORECAST

When compared with last year's forecast, the world's total cargo traffic by 1995 is down by 4 percent; however, the scheduled all-freight RTKs increased by more than 3 percent. It should also be noted that last year's forecast indicated a slightly decreasing percent (from 36 to 34) allocated to the scheduled all-freight portion, while the current forecast showed a continuing ratio stability throughout the forecast of 37 percent. Because of the increase in long-term needs for all-freight traffic and because of new retirement guidelines, the number of forecast generic aircraft rose while the number of specific aircraft decreased slightly. The net effect was 13 less units in the world's fleet by 1995. Another consideration in this year's forecast was the re-engined, narrow-body freighter (DC-8 series aircraft), which is expected to remain in the fleet through the mid-1990s.

The 15-year generic requirement for the large wide-body freighter has increased moderately (16 aircraft) from last year. Even with this increase in units, the RTKs performed by this class were measured as 62 percent of the total capacity required by the cargo fleet in both the 1981 and the 1982 forecasts. This uniformity is again evident by the fact that the remaining RTKs indicate a need for approximately 274 other generic units; this is only a two-aircraft difference from last year's forecast.

CARGO ANALYSIS

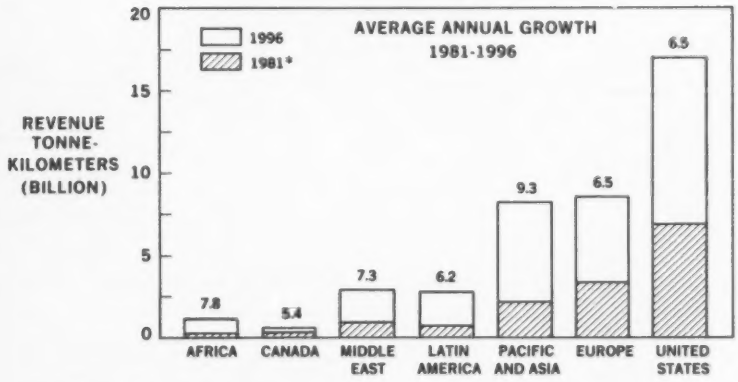
TOTAL WORLD CARGO TRAFFIC



*1981 NON U.S. RTKs ARE ESTIMATED

- Historically, all-freight traffic has been characterized by time constraints, distance considerations, shipment size and scheduled service. These factors are forecast to continue, resulting in a significant portion of total cargo being carried as all-freight.
- The moderate long-term growth is based on stimulation of the cargo market by availability of new generation aircraft and the existing commitment to renovation of cargo terminals and cargo handling equipment.

ALL-FREIGHT REVENUE TONNE-KILOMETERS
BY DOMICILED AREA

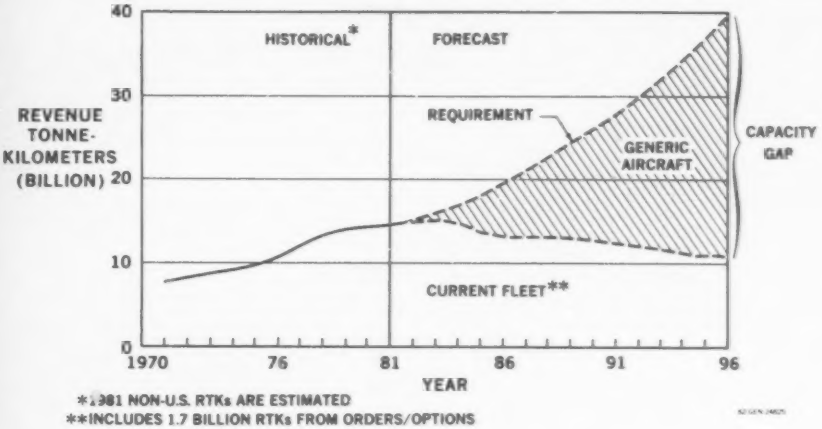


*NON-U.S. 1981 RTKs ARE ESTIMATED

- The percent of the U.S. carriers' share of the all-freight market remains reasonably constant at 42 to 46 percent over the forecast period.
- All-freight traffic increases over the next 15 years will vary between 2.2 times (Canada) to 3.8 times (Pacific and Asia) the 1981 traffic levels.

REVENUE TONNE-KILOMETER SUPPLY FORECAST

ALL-FREIGHT



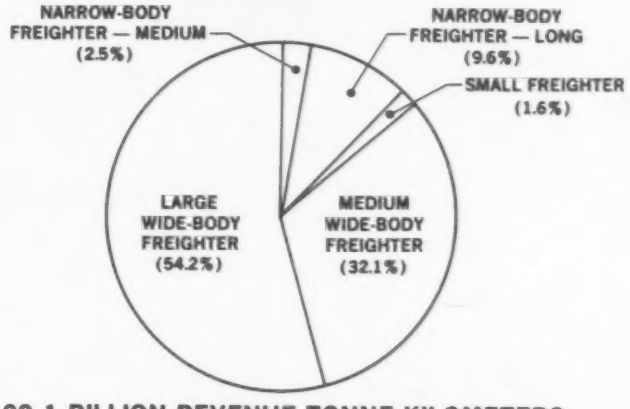
*1981 NON-U.S. RTKs ARE ESTIMATED

**INCLUDES 1.7 BILLION RTKs FROM ORDERS/OPTIONS

- The "capacity" added by ordered, optioned and generic aircraft amounted to 17 percent for retirement and 83 percent for growth.
- Over 70 percent of the all-freight RTKs required by 1996 will be accounted for by generic aircraft not yet on the books.

CARGO AIRCRAFT

ADDITIONAL ALL-FREIGHTER REVENUE TONNE-KILOMETERS BY GENERIC TYPE 1982-1996



29.1 BILLION REVENUE TONNE-KILOMETERS

- Of the five generic classes considered for future availability, the dominance of the medium-and large- capacity wide-body freighters reflects the completion of the transition, over long-haul routes, from narrow-to wide-body aircraft.
- The forecast for the medium wide-body freighter is largely the result of the assumption that the high breakeven load factor required on the large wide-body will preclude its use on developing medium-to long-range routes. The large wide-body will remain effective over high density, long-range routes.

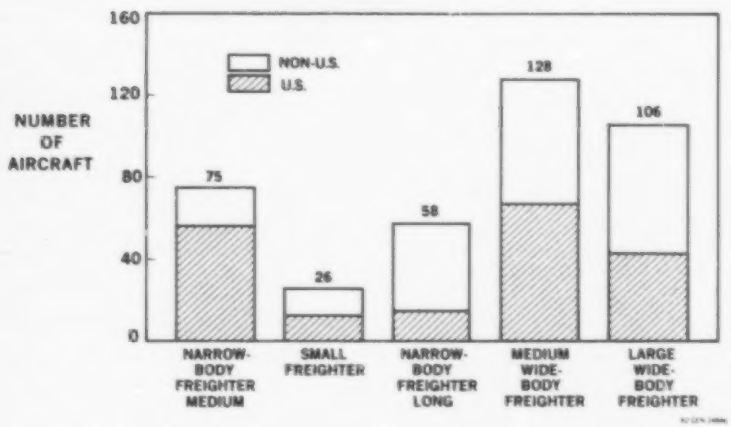
CARGO ANALYSIS (Continued)

CARGO AIRCRAFT

GENERIC AIRCRAFT

BY DOMICILED AREA

1982-1996

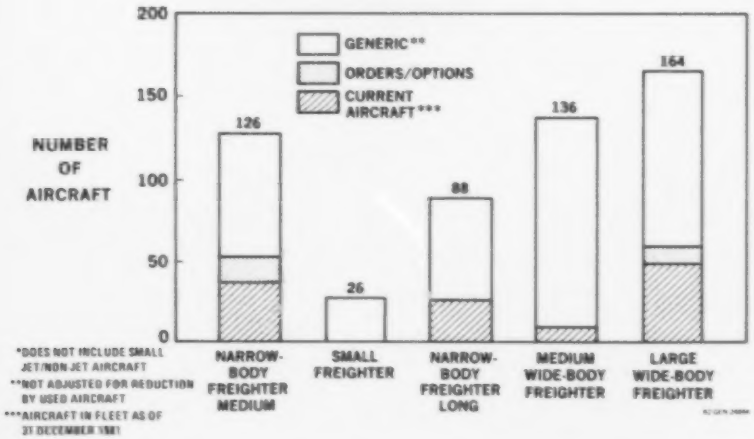


- The international sector accounts for over 65 percent of the generic units required.
- The U.S. domestic market will require almost 70 percent of the narrow-body, medium- and small-freighter classes.
- The sharing of convertible-freighter aircraft between passenger and cargo service will create a need for more than the 393 aircraft shown, which were assumed to be dedicated to cargo service.

CARGO AIRCRAFT

1996 FLEET COMPOSITION*

BY GENERIC TYPE



*DOES NOT INCLUDE SMALL JET/NON JET AIRCRAFT

**NOT ADJUSTED FOR REDUCTION BY USED AIRCRAFT

***AIRCRAFT IN FLEET AS OF 31 DECEMBER 1981

- The large, as yet unsold, number of medium wide-body freighters reflects the need for a medium- to long-range freighter for use on those routes that will not support the large freighter aircraft.
- Narrow-body freighter aircraft are assumed to be re-engined/re-configured versions of aircraft in service today.

Appendices

APPENDIX A
DEFINITIONS

ALL-FREIGHT SERVICE — Refers to the flights performed by aircraft carrying loads other than passenger — i.e., freight and mail — and excludes all flights carrying one or more revenue passengers and flights listed in schedules as providing any passenger service.

AVAILABLE SEAT-KILOMETERS — The sum of the products obtained by multiplying the number of passenger seats available on each flight stage by the flight stage distance.

BELLY-PIT RTKs — The difference between the total revenue tonne-kilometers (RTK) performed by an airline and the RTKs performed in all-freight service.

CURRENT FLEET — Aircraft on hand as of December 31, 1981.

DOMICILED AREA — A geographic definition used to aggregate the total system traffic of all carriers whose home base lies within the geographic area.

GENERIC AIRCRAFT — An aircraft which broadly defines the seat size and range characteristics of possible future aircraft. For purposes of analysis, the generic classification is also used to group existing or proposed specific aircraft types. The following lists the generic aircraft and typical annual capacity (ASKs in millions) and the table lists all specific aircraft members of each passenger class.

PASSENGER TYPES

FEEDER — Propeller and turboprop aircraft of any size and jet aircraft with less than 60 seats. (29)

SHORT-RANGE 110 — Low seating capacity (60-135) with a range up to 1800 nautical miles. (166)

SHORT-RANGE 160 — Seating from 140-185 with a range of 2200 nautical miles. (294)

MEDIUM-RANGE 200 — Primarily a wide-body class with seating capacity to 240 and a range of 2500 nautical miles. (428)

MEDIUM-RANGE 250 — Wide-body class seating up to 270 with a range up to 2500 nautical miles. (536)

LONG-RANGE 270 — A higher-capacity, wide-body class offering 270 to 350 seats with a range up to 5500 nautical miles. (756)

LONG-RANGE 400 — High capacity, wide-body class with seating capacity around 400 and with a range up to 5500 nautical miles. (1209)

LONG-RANGE 600 — Stretched, high capacity, wide-body class with seating capacity around 600 and with a range up to 5500 nautical miles. (2004)

PASSENGER AIRCRAFT BY GENERIC CLASS

SHORT-RANGE 110

BA-146-100
BA-146-200
BAC-1-11-200
BAC-1-11-300
BAC-1-11-400
BAC-1-11-475
BAC-1-11-500
737-100
737-200
737-200C
737-200QC
737-300
CARAVELLE 3
CARAVELLE 6N
CARAVELLE 6R
CARAVELLE 10B
CARAVELLE 10R
CARAVELLE 11R
CARAVELLE 12B
DC-9-10
DC-9-10MC
DC-9-10RC
DC-9-20
DC-9-30
DC-9-30CF
DC-9-30RC
DC-9-40
DC-9-50
DC-9-XX
F-28-1000
F-28-2000
F-28-3000
F-28-4000
F-28-6000
MERCURE
TRIDENT 1C
TRIDENT 1E
TRIDENT 2E
TRIDENT 3B
TU-104
TU-134
YAK-42

SHORT-RANGE 160

A320
727-100
727-100C
727-100QC
727-200
757-100
757-200
7-7
DC-9 SUPER 80
D-3300

MEDIUM-RANGE 200

A310-100
A310-200
707-120
707-120B
707-138
707-138B
707-220
720
720B
767-100
767-200
COMET 4
COMET 4B
COMET 4C
CV-880
CV-990A
DC-8-20
DC-8-30
DC-8-40
SUPER VC-10
TU-154
VC-10

MEDIUM-RANGE 250

A300B-1
A300B-2
A300B-2K
A300B-4
A300B-600
A300C-4
767 STRETCH
DC-8-61
DC-8-61CF
DC-8-71
DC-8-71CF
DC-10-10
DC-10-10CF
DC-10-15
L-1011-1
L-1011-100
L-1011-200

LONG-RANGE 270

707-320
707-320B
707-320C
747-420
747SP
CONCORDE
DC-10-30
DC-10-30CF
DC-10-30ER
DC-10-40
DC-10 SUPER 10
DC-8-50
DC-8-50CF
DC-8-62
DC-8-62CF
DC-8-72
DC-8-72CF
DC-8-63
DC-8-63CF
DC-8-63PF
DC-8-73
DC-8-73CF
IL-62
IL-86
L-1011-500

LONG-RANGE 400

747-100
747-100SR
747-200
747-200C
747-200CSUD
747-200R
747-200SCD
747-200SUD
DC-10 STRETCH

LONG-RANGE 600
747 STRETCH

FEEDER
ALL OTHER AIRCRAFT

CARGO TYPES (Including convertible-freighters):

NARROW-BODY FREIGHTER-MEDIUM — Currently available versions of DC-9, 737 and 727 new/used freighter and convertible-freighter aircraft with a capacity lift of up to 17 metric tons (19 tons).

NARROW-BODY FREIGHTER-LONG — Currently available versions of DC-8 and 707 used freighter and convertible-freighter aircraft with a capacity lift of up to 42 metric tons (46 tons).

SMALL FREIGHTER — A small-size cargo aircraft (185 cubic meters, 6500 cubic feet) with a range of 2500 nautical miles and a capacity lift of up to 26 metric tons (29 tons). Could include proposed cargo version of 150-seater, A320, 757, and DC-9 Super 80 class aircraft.

MEDIUM WIDE-BODY FREIGHTER — A medium-size cargo aircraft (350 cubic meters, 12,000 cubic feet) with a range of 3500 nautical miles and a capacity lift of up to 50 metric tons (55 tons). Includes DC-10CF and proposed A300, A310 and 767 class aircraft.

LARGE WIDE-BODY FREIGHTER — A large-size cargo aircraft (670 cubic meters, 24,000 cubic feet) with a range of 4500 nautical miles and capacity lift of up to 95 metric tons (105 tons). Includes 747 and proposed DC-10 Stretch class aircraft.

NONSCHEDULED SERVICE (Revenue) — Charter flights and special flights performed for remuneration on an irregular basis, including empty flights related thereto and "inclusive tours" other than those reported under scheduled services.

PRODUCTIVITY — Productivity is measured in terms of available seat-kilometers for passenger aircraft and revenue tonne-kilometers for cargo aircraft.

RETAINED AIRCRAFT — An aircraft that is retired by its operating carrier and assumed sold or leased to another carrier within the study group. Retired aircraft that are not retained are assumed either sold or leased to carriers outside of the study group or they are assumed scrapped or grounded.

REVENUE PASSENGER-KILOMETERS — The sum of the products obtained by multiplying the number of revenue passengers carried on each flight stage by the flight stage distance.

REVENUE PASSENGER LOAD FACTOR — Revenue passenger-kilometers expressed as a percentage of available seat-kilometers.

REVENUE TONNE (METRIC TON) KILOMETERS — The sum of the products obtained by multiplying the number of revenue load metric tons carried on each flight stage by the flight stage distance.

ROUTE/AREA DEFINITIONS — These definitions are drawn from the IATA standards.

NORTH AMERICA — Canada and the United States, including Hawaii and Alaska but excluding the Canal Zone, Puerto Rico, and the Virgin Islands.

CENTRAL AMERICA — The Bahamas, Bermuda, Belize, the Canal Zone, Costa Rica, El Salvador, Guatemala, Honduras, the Islands of the Caribbean Sea (including Puerto Rico, Antilles, and the Virgin Islands), Mexico, Nicaragua, and Panama.

SOUTH AMERICA — Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Falkland Islands, French Guyana, Guyana, Paraguay, Peru, Surinam, Uruguay, and Venezuela.

NORTH ATLANTIC — Any route between Europe, Africa, or the Middle East and the Western Hemisphere via a gateway in North America.

MID-ATLANTIC — Any route between Europe, Africa, or the Middle East and the Western Hemisphere via a gateway in Central America or the following South American countries: Bolivia, Colombia, Ecuador, French Guyana, Guyana, Peru, Surinam, or Venezuela.

SOUTH ATLANTIC — Any route between Europe, Africa, or the Middle East and the Western Hemisphere via a gateway in Argentina, Brazil, Chile, Paraguay or Uruguay.

EUROPE — Geographical Europe and Algeria, the Azores, the Canary Islands, Madeira, Morocco, Tunisia, and Turkey.

NORTH AFRICA — The part of Africa north of the Equator, but excluding those areas mentioned in Europe and the Middle East.

SOUTHERN AFRICA — The part of Africa south of the Equator.

MIDDLE EAST — Bahrein, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syria, United Arab Emirates, Yemen Arab Republic, and Yemen People's Democratic Republic.

FAR EAST AND AUSTRALASIA — IATA Traffic Conference Area 3.

NORTH AND MID-PACIFIC — Any route between points in Conference Area 1 and points in Conference Area 3 (Except Australasia) via the North and Central Pacific Ocean.

SOUTH PACIFIC — Any route between points in Conference Area 1 and points in Australasia via the South Pacific Ocean.

Traffic Conference No. 1 encompasses all of the North and South American continents and the islands adjacent thereto, Bermuda, the West Indies, the Islands of the Caribbean Sea, and the Hawaiian Islands, including Midway and Palmyra.

Traffic Conference No 2 encompasses all of Europe including that part of the Union of Soviet Socialist Republics in Europe, the islands adjacent thereto, Iceland, the Azores, the Middle East, all of Africa and the islands adjacent thereto, Ascension Island, and that part of Asia lying west of and including Iran.

Traffic Conference No. 3 encompasses all of Asia and the islands thereto except that portion included in Traffic Conference No. 2, all of the East Indies, Australia, New Zealand, and the islands adjacent thereto and the islands of the Pacific Ocean except those included in Traffic Conference No. 1.

SCHEDULED SERVICE (Revenue) — Scheduled flights which are open to use by the public and are performed according to a published timetable, or so regularly or frequently as to constitute a recognizable systematic series, extra flights occasioned by overflow traffic from the scheduled flights and preparatory revenue flights on planned air services.

SPECIFIC AIRCRAFT — Existing types of aircraft and proposed types of aircraft committed to production or for which orders have been contracted with a manufacturer.

APPENDIX B
ECONOMETRIC APPROACH

REGIONAL TRAFFIC FORECASTING

The methodology used in developing the regional traffic forecasts was based upon econometric forecasting procedures. This technique is quite common in the aviation forecasting community. It involves developing a traffic forecast on the basis of historical relationships between traffic and explanatory variables, such as: income, price and quality of service. The forecasts of the explanatory variables are presumably easier to develop than forecasting traffic itself.

Traffic is forecast for 32 regions throughout the world as part of the "Outlook" process. In several cases (generally where yield data is unavailable or incomplete) econometric analysis was not satisfactory and judgmental analysis was substituted relying primarily on experience and market knowledge.

Forecasts of the explanatory variables, usually income and price, were obtained from the following sources: income — was produced based upon the Chase Econometrics forecast of output and prices in the major industrialized nations; price — the real yield assumptions were linked to the IATA Traffic Forecasting Committee regional real yield forecasts.

U. S. AIRLINE INDUSTRY MODEL

The U.S. Airline Industry Model (developed by the Douglas Aircraft Company) forecasts traffic demand, revenues, expenses, and profits for the U.S. airline industry. Traffic demand forecasts are created for the Certificated CAB set of commercial airlines. Their individual carrier traffic forecasts are used to forecast total revenues for the U.S. industry. Concurrently, macro forecasts of industry expense items are also created allowing the model to project future industry profit levels given the revenue and expense forecasts.

The traffic demand forecasts are derived by using econometric equations which are typically a function of price, incomes, and an airline's market share. These forecasts are then used to estimate the industries' revenue generation. The expense equations are also econometrically estimated based on such operational variables as capacity levels, number of departures, stage length, etc. The amount of profits then becomes an identity which subtracts total industry expenses from revenues.

At the present time there are approximately 500 variables in the model. Of these, 165 are based on behavioral equations with the remainder being either identities or exogenously determined.

METHODOLOGY – INDIVIDUAL AIRLINES

In an effort to produce a reliable forecast of airline activity over the long-term planning horizon, selected traffic forecasting models were developed on an individual airline basis. Since the number of airlines under study is very large, traffic forecasting models on an individual airline basis were limited to those airlines contributing the top 85 percent of scheduled revenue passenger kilometers (RPKs) or approximately 50 airlines. In order to be compatible with our regional total market forecasts, these individual airline forecasts were generated by region of operation as defined in the IATA traffic conference breakdowns.

The models were single equation formulation of the logarithm of individual airline's regional RPKs as a function of the logarithm of regional income and real regional average fares. The real income is composed of the weighted real gross domestic product (GDP) of the countries represented in each region. The real regional average fares are the ICAO estimates of nominal regional average fares converted to real terms using a composite deflation for the countries in the particular region. The weighting on the individual countries was on the basis of 1975 constant dollar GDP size. While participation by country of residence would be a theoretically superior measure for weightings, the availability of consistent data precluded the use of such weighting, and GDP size was used as a reasonable proxy.

U.S. DOMESTIC LOAD FACTOR RATIONALE

The continued increase in the percent of available seating capacity occupied (i.e., the load factor) is an area of some concern to industry observers. During the 1970s the load factors in the U.S. Domestic system ranged from 50 to 60 percent while the forecast has load factors during the next fifteen years of being between 60 to 70 percent. What factors are behind this upward increase in load factors?

The explanation of this phenomenon is simply that airlines will need to become more efficient (the relation of inputs to output) in all facets of their operations in order to survive cost and competitive pressures that are likely to confront the industry over the balance of this planning cycle. Unit Labor and fuel costs are anticipated to increase in excess of the general rate of inflation, while yields (the revenue per passenger-kilometer) will increase at the same or a slightly slower rate than inflation. The only way to remain profitable in the event of these circumstances is to become more productive with airline equipment. Aside from the operational decisions of modern equipment and high use per day (i.e., aircraft utilization), airlines will continue to strive to maximize onboard load factors.

APPENDIX C
AIRLINES STUDIED

UNITED STATES (38)

MAJORS (12)

AMERICAN AIRLINES
BRANIFF AIRWAYS (Historical only)
CONTINENTAL AIRLINES
DELTA AIRLINES
EASTERN AIRLINES
NORTHWEST ORIENT AIRLINES
PAN AMERICAN WORLD AIRWAYS
REPUBLIC AIRLINES
TRANS WORLD AIRLINES
UNITED AIRLINES
USAIR
WESTERN AIRLINES

NATIONALS (15)

AIRCAL
AIR FLORIDA
ALASKA AIRLINES
ALOHA AIRLINES
CAPITOL INTERNATIONAL AIRWAYS
FRONTIER AIRLINES
HAWAIIAN AIRLINES
OZARK AIRLINES
PIEDMONT AVIATION
PACIFIC SOUTHWEST AIRLINES
SOUTHWEST AIRLINES
TEXAS INTERNATIONAL AIRLINES
TRANSAMERICA AIRLINES
WIEN AIR ALASKA
WORLD AIRWAYS

ALL-CARGO SERVICE (3)

AIRLIFT INTERNATIONAL (Historical only)
FEDERAL EXPRESS
FLYING TIGER LINE

LARGE REGIONALS (7)

AIR NEW ENGLAND (Historical only)
EVERGREEN INTERNATIONAL AIRLINES
MIDWAY AIRLINES
MUSE AIR
NEW YORK AIR
PEOPLE EXPRESS
REEVE ALEUTIAN AIRWAYS

OVERSEAS NATIONAL AIRWAYS (Historical only)

CANADA (7)

AIR CANADA
CP AIR
EASTERN PROVINCIAL
NORDAIR
PACIFIC WESTERN
QUEBECAIR
WARDAIR CANADA

EUROPE (36)
SCHEDULED

AER LINGUS
AIR FRANCE
AIR INTER
AIR MALTA
AIR PORTUGAL-TAP
AIR U.K.
ALISARDA
ALITALIA
A.T.I.
AUSTRIAN
AVIACO
BRAATHENS
BRITISH AIRWAYS
BRITISH CALEDONIAN AIRWAYS
CSA (CZECHOSLOVAK AIRLINES)
FINNAIR
IBERIA
ICELANDAIR (Flugfelag)
ITAVIA (Historical only)
JAT
KLM
LAKER (Historical only)
LINJEFLYG
LOT (Polish Airlines)
LUFTHANSA GERMAN AIRLINES
LUXAIR
MALEV
NLM (City Hopper)
OLYMPIC AIRWAYS
SABENA
SAS
SATA
SWISSAIR
TAROM (Romanian Air Transport)
THY (Turk Hava Yollari)
U.T.A.

EUROPE (24)

NONSCHEDULED

BALAIR
BRITANNIA AIRWAYS
BRITISH MIDLAND AIRWAYS (some scheduled)
CARGOLUX AIRLINES INTERNATIONAL (cargo only)
CONAIR A/S
CONDOR
CTA
DAN-AIR SERVICES, LTD. (some scheduled)
HAPAG-LLOYD
INEX ADRIA AIRWAYS
KAR-AIR (some scheduled)
LTU
MAERSK AIR
MARTINAIR
MONARCH AIRLINES
SCANAIR
SOBELAIR
SPANTAX
STERLING AIRWAYS
TRANS EUROPA (Historical only)
TRANSAIR SWEDEN (Historical only)
TRANSAVIA
TRANS EUROPEAN AIRWAYS
TRANSMERIDAN AIR CARGO (Historical only)

AFRICA (20)

AIR AFRIQUE
AIR ALGERIE
AIR MADAGASCAR
AIR MALAWI
AIR MALI
AIR TANZANIA
AIR ZAIRE
AIR ZIMBABWE
CAMEROON
ETHIOPIAN AIRLINES
GHANA AIRWAYS
KENYA AIRWAYS
LAM-MOZAMBIQUE
LIBYAN ARAB AIRLINES
NIGERIA AIRWAYS
ROYAL AIR MAROC
SOUTH AFRICAN AIRWAYS
TAAG (Angola Airlines)
TUNIS AIR
ZAMBIA AIRWAYS

LATIN AMERICA (35)

AEROCONDOR (Historical only)
AEROLINEAS ARGENTINAS
AEROMEXICO
AEROPERU
AIR JAMAICA
AIR PANAMA INTERNATIONAL
ALM
AUSTRAL
AVENSA
AVIANCA
AVIATECA
BAHAMASAIR
COPA
CRUZEIRO
CUBANA
DOMINICANA
ECUATORIANA
FAUCETT
LAB (Lloyd Aereo Boliviano)
LACSA
LADECO
LAN-CHILE AIRLINES
LAV (Linea Aeropostal Venezolana)
MEXICANA
PLUNA
SAHSA
SAM
SURINAM
TACA
TAN AIRLINES
TRANSBRASIL
TRINIDAD AND TOBAGO (BWIA Int'l) AIRWAYS
VARIG
VASP
VIASA

MIDDLE EAST (18)

ALIA (Royal Jordanian Airlines)
ARIANA AFGHAN AIRLINES
ARKIA
BANGLADESH BIMAN
CYPRUS AIRWAYS
EGYPTAIR
EL AL (Israel Airlines)
GULF AIR
IRAN AIR
IRAQI AIRWAYS

KUWAIT AIRWAYS
M.E.A.
PAKISTAN INTERNATIONAL AIRLINES
SAUDI ARABIAN AIRLINES
SUDAN AIRWAYS
SYRIAN ARAB AIRLINES
TMA (Trans Mediterranean Airways - cargo only)
YEMEN AIRWAYS

ASIA AND PACIFIC (29)

AIR INDIA
AIR LANKA
AIR NEW ZEALAND
AIR NIUGINI
AIR PACIFIC
AIRLINE OF WESTERN AUSTRALIA
ALL NIPPON AIRWAYS
ANSETT AIRLINES
BOURAQ INDONESIAN AIRLINES
CATHAY PACIFIC AIRWAYS
CHINA AIRLINES
EAST-WEST AIRLINES
GARUDA INDONESIAN AIRWAYS
INDIAN AIRLINES
JAL (Japan Air Lines)
JAPAN ASIA AIRWAYS
KOREAN AIRLINES
MALAYSIAN AIRLINE SYSTEM
MERPATI NUSANTARA AIRLINES
PHILIPPINE AIRLINES
POLYNESIAN AIRLINES
QANTAS AIRWAYS
ROYAL NEPAL AIRLINES
SINGAPORE AIRLINES
SOUTHWEST (Japan)
TAA
TDA (TOA Domestic Airlines)
THAI AIRWAYS (Domestic)
THAI AIRWAYS INTERNATIONAL

207 Airlines in Study Group (ten with historical data only)

APPENDIX D
TRAFFIC AND CAPACITY DETAIL
(PASSENGER AND CARGO)

PASSENGER TRAFFIC HISTORY AND FORECAST

TOTAL WORLD

TOTAL REPORT (RPKs AND ASKs IN BILLIONS)

	SCHEDULED SERVICE					NONSCHEDULED SERVICE					ALL SERVICES				
YEAR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR
1971	390.7	0.0	771.3	0.0	50.6	64.0	0.0	85.7	0.0	74.6	454.7	0.0	857.0	0.0	53.0
1972	452.1	15.7	835.6	8.3	54.1	71.6	11.8	110.9	29.3	64.5	523.8	15.1	946.6	10.4	55.3
1973	519.2	14.8	939.2	12.4	55.2	83.7	16.8	111.7	0.6	74.9	603.0	15.1	1051.0	11.0	57.3
1974	548.2	5.5	964.6	2.7	56.8	92.6	10.6	120.3	7.6	77.0	640.8	6.2	1084.9	3.2	59.0
1975	574.1	4.7	1021.1	5.8	56.2	104.0	12.3	142.3	18.3	73.0	678.1	5.8	1163.5	7.2	58.2
1976	632.8	10.2	1101.0	7.8	57.4	108.3	4.1	150.4	5.6	72.0	741.2	9.3	1251.4	7.5	59.2
1977	696.6	10.0	1187.7	7.8	58.6	115.7	6.7	148.3	−1.3	78.0	812.4	9.6	1336.0	6.7	60.8
1978	802.2	15.1	1287.5	8.4	62.3	119.8	3.5	151.6	2.2	79.0	922.0	13.4	1439.1	7.7	64.0
1979	906.5	13.0	1422.2	10.4	63.7	114.3	−4.5	143.2	−5.5	79.8	1020.9	10.7	1565.5	8.7	65.2
1980	925.8	2.1	1518.0	6.7	60.9	104.6	−8.5	134.0	−6.4	78.0	1030.4	0.9	1652.3	5.5	62.3
1981	941.2*	1.6	1561.1*	2.8	60.2	103.2*	−1.3	132.2*	−1.3	78.0	1044.5*	1.3	1693.4*	2.4	61.6
1982**	991.8	5.3	1635.2	4.7	60.6	103.2	−0.0	131.3	−0.7	78.6	1095.0	4.8	1766.6	4.3	61.9
1983	1071.0	7.9	1749.2	6.9	61.2	108.8	5.4	136.6	4.0	79.6	1179.8	7.7	1885.9	6.7	62.5
1984	1149.8	7.3	1854.2	6.0	62.0	114.8	5.5	143.6	5.1	79.9	1264.6	7.1	1997.8	5.9	63.3
1985	1210.9	5.3	1935.5	4.3	62.5	121.1	5.5	151.5	5.5	79.9	1332.1	5.3	2087.1	4.4	63.8
1986	1291.8	6.6	2038.7	5.3	63.3	127.3	5.0	158.8	4.8	80.1	1419.2	6.5	2197.6	5.3	64.5
1987	1376.9	6.5	2150.2	5.4	64.0	133.5	4.8	166.0	4.5	80.4	1510.5	6.4	2316.2	5.4	65.2
1988	1472.6	6.9	2274.7	5.7	64.7	139.9	4.8	173.5	4.5	80.6	1612.6	6.7	2448.2	5.7	65.8
1989	1571.7	6.7	2413.7	6.1	65.1	146.6	4.8	181.5	4.6	80.8	1718.3	6.5	2595.2	6.0	66.2
1990	1674.6	6.5	2548.7	5.5	65.7	153.3	4.5	189.8	4.5	80.7	1828.0	6.3	2738.6	5.5	66.7
1991	1780.9	6.3	2689.3	5.5	66.2	160.2	4.4	197.7	4.1	81.0	1941.1	6.1	2887.0	5.4	67.2
1992	1892.0	6.2	2850.8	6.0	66.3	167.3	4.4	205.6	4.0	81.3	2059.4	6.0	3056.5	5.8	67.3
1993	2010.2	6.2	3020.3	5.9	66.5	174.8	4.4	214.5	4.3	81.5	2185.0	6.1	3234.9	5.8	67.5
1994	2136.1	6.2	3203.5	6.0	66.6	182.6	4.4	224.2	4.5	81.4	2318.8	6.1	3427.7	5.9	67.6
1995	2270.1	6.2	3398.1	6.0	66.8	190.9	4.5	234.3	4.5	81.4	2461.1	6.1	3632.4	5.9	67.7
1996	2413.2	6.3	3606.0	6.1	66.9	199.6	4.5	245.0	4.5	81.4	2612.8	6.1	3851.1	6.0	67.8

*ESTIMATED VALUES FOR NON-U.S. AIRLINES
**FORECAST BEGINS IN 1982

82-GEN-24875

PASSENGER TRAFFIC HISTORY AND FORECAST

TOTAL U.S.

TOTAL REPORT (RPKs AND ASKs IN BILLIONS)

	SCHEDULED SERVICE					NONSCHEDULED SERVICE					ALL SERVICES				
YEAR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR
1971	217.6	0.0	446.8	0.0	48.7	34.1	0.0	40.9	0.0	83.3	251.7	0.0	487.5	0.0	51.6
1972	246.4	13.2	463.3	3.7	53.1	31.8	−6.5	38.0	−6.9	83.6	278.3	10.5	501.4	2.8	55.5
1973	264.5	7.3	505.8	9.1	52.3	35.6	11.7	43.5	14.3	81.7	300.2	7.8	549.4	9.5	54.6
1974	266.9	0.8	484.5	−4.2	55.0	33.2	−6.7	43.7	0.3	76.0	300.1	−0.0	528.2	−3.8	56.8
1975	267.6	0.2	494.6	2.0	54.1	30.6	−7.6	38.5	−11.8	79.6	298.3	−0.6	533.2	0.9	55.9
1976	293.9	9.8	527.2	6.5	55.7	33.6	9.7	42.0	8.9	80.2	327.6	9.8	569.2	6.7	57.5
1977	317.7	8.1	565.3	7.2	56.2	36.5	8.5	45.1	7.4	81.0	354.3	8.1	610.4	7.2	58.0
1978	372.1	17.1	604.8	6.9	61.5	33.5	−8.3	40.5	−10.0	82.6	405.6	14.4	645.4	5.7	62.8
1979	420.6	13.0	668.7	10.5	62.8	26.1	−22.0	30.7	−24.1	84.9	446.7	10.1	699.5	8.3	63.8
1980	409.9	−2.5	694.5	3.8	59.0	19.7	−24.2	25.1	−18.2	78.6	429.7	−3.8	719.6	2.8	59.7
1981	399.0	−2.6	680.5	−2.0	58.6	17.6	−10.7	22.0	−12.3	80.0	416.6	−3.0	702.6	−2.3	59.3
1982*	416.4	4.3	709.8	4.3	58.6	18.0	2.3	22.3	1.4	80.7	434.5	4.2	732.2	4.2	59.3
1983	446.4	7.1	751.5	5.8	59.4	18.9	4.7	23.2	3.8	81.4	465.3	7.0	774.8	5.8	60.0
1984	475.9	6.6	784.3	4.3	60.6	20.0	6.0	24.5	5.8	81.6	496.0	6.6	808.9	4.4	61.3
1985	495.9	4.2	809.1	3.1	61.2	20.8	3.7	25.5	3.8	81.6	516.7	4.1	834.7	3.1	61.9
1986	524.8	5.8	839.2	3.7	62.5	21.4	3.1	26.2	2.9	81.7	546.3	5.7	865.5	3.6	63.1
1987	553.7	5.5	874.0	4.1	63.3	22.1	2.9	27.0	2.9	81.7	575.8	5.4	901.1	4.1	63.9
1988	587.4	6.0	915.6	4.7	64.1	22.7	2.7	27.6	2.0	82.3	610.2	5.9	943.2	4.6	64.6
1989	622.5	5.9	961.0	4.9	64.7	23.3	2.7	28.3	2.7	82.3	645.9	5.8	989.3	4.8	65.2
1990	658.4	5.7	1004.1	4.4	65.5	24.0	2.7	29.1	2.8	82.2	682.4	5.6	1033.2	4.4	66.0
1991	695.3	5.6	1045.6	4.1	66.5	24.6	2.7	30.0	2.8	82.2	720.0	5.5	1075.6	4.1	66.9
1992	732.5	5.3	1096.5	4.8	66.8	25.3	2.7	30.3	1.2	83.4	757.8	5.2	1126.9	4.7	67.2
1993	771.7	5.3	1149.3	4.8	67.1	26.0	2.5	31.0	2.1	83.7	797.7	5.2	1180.4	4.7	67.5
1994	813.1	5.3	1205.5	4.8	67.4	26.6	2.6	31.8	2.6	83.7	839.8	5.2	1237.4	4.8	67.8
1995	856.9	5.3	1264.3	4.8	67.7	27.4	2.6	32.7	2.7	83.6	884.3	5.3	1297.0	4.8	68.1
1996	903.2	5.4	1326.2	4.8	68.1	28.1	2.7	33.6	2.7	83.6	931.4	5.3	1359.8	4.8	68.4

*FORECAST BEGINS IN 1982

82-GEN-24874

PASSENGER TRAFFIC HISTORY AND FORECAST

TOTAL NON-U.S.

TOTAL REPORT (RPKs AND ASKs IN BILLIONS)

	SCHEDULED SERVICE					NONSCHEDULED SERVICE					ALL SERVICES				
YEAR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR
1971	173.9	0.0	324.6	0.0	53.3	29.8	0.0	44.8	0.0	66.8	203.8	0.0	369.5	0.0	54.9
1972	205.7	18.3	372.2	14.8	55.2	39.7	32.6	72.8	62.5	54.5	245.4	20.9	445.1	20.4	55.1
1973	254.7	23.8	433.3	16.4	58.7	48.0	21.0	68.1	-6.4	70.5	302.7	23.3	501.5	12.6	60.3
1974	281.3	10.4	480.1	10.7	58.5	59.3	23.5	76.5	12.3	77.5	340.7	12.5	556.7	10.9	61.2
1975	306.5	8.9	526.4	9.6	58.2	73.3	23.4	103.8	35.5	70.6	379.8	11.4	630.3	13.2	60.2
1976	338.9	10.5	573.7	8.9	59.0	74.6	1.8	108.4	4.4	68.8	413.6	8.8	682.1	8.2	60.6
1977	378.8	11.7	622.3	8.4	60.8	79.1	5.9	103.2	-4.7	76.6	458.0	10.7	725.5	6.3	63.1
1978	430.0	13.5	682.6	9.6	63.0	86.3	9.0	111.0	7.6	77.6	516.3	12.7	793.7	9.3	65.0
1979	485.9	13.0	753.4	10.3	64.5	88.2	2.2	112.4	1.2	78.4	574.2	11.2	865.9	9.1	66.3
1980	515.8	6.1	823.7	9.3	62.6	84.8	-3.8	106.8	-3.1	77.9	600.6	4.6	932.6	7.7	64.4
1981	542.2*	5.1	880.6*	6.9	61.5	85.6*	0.9	110.2*	1.2	77.6	627.8*	4.5	990.8*	6.2	63.3
1982**	575.3	6.1	925.4	5.0	62.1	85.1	-0.5	108.9	-1.1	78.1	660.5	5.2	1034.4	4.4	63.8
1983	624.6	8.5	997.7	7.8	62.6	89.8	5.5	113.4	4.0	79.2	714.5	8.1	1111.1	7.4	64.3
1984	673.8	7.8	1069.8	7.2	62.9	94.7	5.4	119.0	4.9	79.6	768.6	7.5	1188.9	7.0	64.6
1985	714.9	6.1	1126.3	5.2	63.4	100.3	5.9	126.0	5.9	79.6	815.3	6.0	1252.3	5.3	65.1
1986	767.0	7.2	1199.5	6.5	63.9	105.8	5.4	132.5	5.1	79.8	872.8	7.0	1332.1	6.3	65.5
1987	832.2	7.3	1276.1	6.3	64.5	111.3	5.2	138.9	4.8	80.1	934.6	7.0	1415.1	6.2	66.0
1988	885.2	7.5	1359.1	6.5	65.1	117.2	5.2	145.9	4.9	80.3	1002.4	7.2	1505.0	6.3	66.6
1989	949.1	7.2	1452.7	6.8	65.3	123.3	5.2	153.1	4.9	80.5	1072.4	6.9	1605.9	6.7	66.7
1990	1016.2	7.0	1544.6	6.3	65.7	129.3	4.9	160.6	4.9	80.5	1145.6	6.8	1705.3	6.1	67.1
1991	1085.5	6.8	1643.6	6.4	66.0	135.5	4.7	167.7	4.3	80.8	1221.1	6.5	1811.3	6.2	67.4
1992	1159.5	6.8	1754.3	6.7	66.1	142.0	4.7	175.2	4.5	81.0	1301.6	6.5	1929.5	6.5	67.4
1993	1238.5	6.8	1871.0	6.6	66.2	148.8	4.7	183.4	4.7	81.1	1387.3	6.5	2054.4	6.4	67.5
1994	1322.9	6.8	1997.9	6.7	66.2	155.9	4.8	192.3	4.8	81.1	1478.9	6.6	2190.2	6.6	67.5
1995	1413.2	6.8	2133.7	6.8	66.2	163.5	4.8	201.5	4.8	81.1	1576.7	6.6	2335.3	6.6	67.5
1996	1509.9	6.8	2279.8	6.8	66.2	171.4	4.8	211.3	4.8	81.1	1681.4	6.6	2491.2	6.6	67.4

*ESTIMATED VALUE – ACTUAL NOT AVAILABLE
**FORECAST BEGINS IN 1982

82-GEN-24872

PASSENGER TRAFFIC HISTORY AND FORECAST

MAJORS

TOTAL REPORT (RPKs AND ASKs IN BILLIONS)

	SCHEDULED SERVICE					NONSCHEDULED SERVICE					ALL SERVICES				
YEAR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR
1971	207.6	0.0	427.2	0.0	48.6	17.1	0.0	20.2	0.0	84.7	224.8	0.0	447.5	0.0	50.2
1972	235.4	13.4	443.2	3.7	53.1	16.2	-5.4	19.2	-5.3	84.6	251.7	11.9	462.4	3.3	54.4
1973	252.9	7.4	484.6	9.3	52.1	18.3	13.1	21.6	12.8	84.8	271.3	7.7	506.2	9.4	53.6
1974	253.9	0.3	461.5	-4.7	55.0	16.6	-9.6	19.6	-9.2	84.4	270.5	-0.2	481.2	-4.9	56.2
1975	253.9	0.0	470.5	1.9	53.9	15.0	-9.3	18.7	-4.9	80.5	268.8	-0.5	489.2	1.6	54.9
1976	278.2	9.5	500.3	6.3	55.6	19.0	26.2	23.4	25.2	81.1	297.2	10.4	523.7	7.0	56.7
1977	298.9	7.8	535.2	6.9	56.0	18.8	-0.7	22.8	-2.4	82.5	318.8	7.2	558.0	6.5	57.1
1978	350.6	16.8	569.4	6.4	61.5	14.1	-25.1	17.1	-25.0	82.4	364.7	14.3	586.5	5.1	62.1
1979	383.4	12.2	624.9	9.7	62.9	9.6	-31.8	11.5	-32.6	83.3	403.1	10.5	636.5	8.5	63.3
1980	376.0	-4.4	636.7	1.8	59.8	5.8	-39.5	7.2	-37.3	80.4	381.9	-5.2	644.0	1.1	59.3
1981	353.4	-6.0	606.9	-4.6	58.2	2.9	-49.3	3.8	-47.0	76.9	356.3	-6.6	610.7	-5.1	58.3
1982*	365.6	3.4	627.2	3.3	58.2	3.0	4.1	3.8	1.2	79.1	368.7	3.4	631.1	3.3	58.4
1983	390.2	6.7	661.9	5.3	59.0	3.2	4.1	4.0	4.0	79.2	393.4	6.7	665.8	5.3	59.1
1984	414.7	6.2	687.0	3.9	60.3	3.3	4.1	4.2	4.2	79.1	418.1	6.2	691.2	3.9	60.4
1985	430.6	3.8	706.1	2.7	60.9	3.4	4.1	4.3	4.1	79.1	434.1	3.8	710.5	2.7	61.1
1986	455.2	5.7	730.9	3.5	62.2	3.6	4.1	4.5	2.6	80.2	458.8	5.6	735.4	3.5	62.3
1987	479.8	5.4	760.2	4.0	63.1	3.7	2.6	4.6	2.5	80.3	483.5	5.3	764.8	4.0	63.2
1988	508.7	6.0	795.3	4.6	63.9	3.8	2.6	4.7	2.4	80.5	512.5	6.0	800.1	4.6	64.0
1989	538.6	5.8	833.9	4.8	64.5	3.9	2.7	4.8	2.4	80.7	542.5	5.8	838.7	4.8	64.6
1990	568.1	5.6	870.1	4.3	65.4	4.0	2.6	4.9	2.6	80.7	573.1	5.6	875.0	4.3	65.5
1991	600.5	5.5	904.7	3.9	66.3	4.1	2.7	5.1	2.7	80.6	604.6	5.5	909.8	3.9	66.4
1992	632.1	5.2	947.7	4.7	66.7	4.2	2.7	5.2	2.5	80.8	636.3	5.2	952.9	4.7	66.7
1993	665.4	5.2	992.5	4.7	67.0	4.3	2.7	5.3	2.7	80.8	669.7	5.2	997.9	4.7	67.1
1994	700.6	5.2	1040.0	4.7	67.3	4.4	2.7	5.5	2.7	80.8	705.1	5.2	1045.5	4.7	67.4
1995	737.7	5.3	1089.6	4.7	67.7	4.6	2.8	5.6	2.8	80.8	742.3	5.2	1095.3	4.7	67.7
1996	777.0	5.3	1141.7	4.7	68.0	4.7	2.8	5.8	2.8	80.8	781.7	5.3	1147.6	4.7	68.1

*FORECAST BEGINS IN 1982

83-GEN-24879

PASSENGER TRAFFIC HISTORY AND FORECAST

NATIONALS

TOTAL REPORT (RPKs AND ASKs IN BILLIONS)

	SCHEDULED SERVICE					NONSCHEDULED SERVICE					ALL SERVICES				
YEAR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR	RPKs	ANNUAL GROWTH RATE (RPKs)	ASKs	ANNUAL GROWTH RATE (ASK)	LOAD FCTR
1971	9.9	0.0	19.2	0.0	51.6	14.5	0.0	16.3	0.0	89.1	24.5	0.0	35.8	0.0	68.8
1972	10.9	9.5	19.9	3.8	54.6	12.7	-12.8	14.3	-12.5	88.8	23.6	-3.7	34.2	-3.7	68.8
1973	11.5	6.1	21.1	5.8	54.3	13.6	7.8	15.6	9.5	87.4	25.2	7.0	36.7	7.2	68.7
1974	12.9	11.7	22.8	8.2	56.6	13.6	-0.1	15.2	-2.7	89.7	26.6	5.3	38.0	3.5	69.9
1975	13.5	4.2	23.7	4.0	56.9	12.3	-9.6	13.9	-8.4	88.5	25.8	-2.8	37.7	-0.8	68.5
1976	15.5	15.2	26.7	12.3	58.2	11.4	-7.0	12.9	-7.5	88.9	27.0	4.5	39.6	5.0	68.2
1977	17.6	13.4	29.8	11.8	59.1	14.1	23.0	15.9	23.0	88.9	31.7	17.5	45.7	15.4	69.4
1978	21.3	20.9	35.1	17.5	60.8	10.8	10.9	19.0	10.8	88.2	38.1	20.0	54.1	18.3	70.4
1979	26.3	25.8	43.3	23.4	61.9	15.8	-6.8	18.0	-4.9	88.5	42.5	11.4	61.4	13.4	69.2
1980	33.3	24.2	56.7	30.9	58.8	13.3	-14.8	16.9	-6.2	78.6	46.7	9.8	73.7	19.9	63.3
1981	43.1	29.3	69.4	22.4	62.1	14.1	6.2	17.4	2.9	81.1	57.3	22.7	86.9	17.9	65.9
1982*	46.6	7.9	75.5	8.6	61.7	14.4	1.7	17.6	0.9	81.7	61.0	6.4	93.1	7.1	65.5
1983	50.7	8.8	81.7	8.2	62.0	15.1	4.8	18.3	4.2	82.2	65.8	7.9	100.1	7.4	65.7
1984	55.1	8.7	87.5	7.0	63.0	16.1	6.5	19.5	6.2	82.4	71.2	8.2	107.0	6.9	66.6
1985	58.8	6.5	92.4	5.6	63.6	16.7	3.6	20.2	3.7	82.4	75.5	5.9	112.7	5.2	66.9
1986	62.7	6.7	97.9	4.9	64.0	17.1	2.8	20.8	2.9	82.3	79.9	5.8	117.9	4.6	67.7
1987	66.6	6.2	102.0	5.1	65.3	17.6	2.9	21.4	2.9	82.3	84.3	5.5	123.4	4.7	68.3
1988	71.0	6.5	107.6	5.5	65.9	18.1	2.8	21.8	1.8	83.0	89.1	5.7	129.5	4.9	68.8
1989	75.7	6.6	113.7	5.6	66.5	18.6	2.7	22.4	2.8	82.9	94.3	5.8	136.2	5.1	69.2
1990	80.5	6.3	119.8	5.3	67.2	19.1	2.7	23.1	2.8	82.9	99.6	5.6	142.9	4.9	69.7
1991	85.4	6.1	125.8	5.0	67.9	19.6	2.6	23.7	2.7	82.8	105.1	5.5	149.6	4.8	70.3
1992	90.5	5.9	132.8	5.5	68.1	20.2	2.7	23.9	0.8	84.3	110.7	5.3	156.7	4.7	70.6
1993	95.8	5.9	140.1	5.5	68.4	20.7	2.4	24.4	1.8	84.8	116.5	5.2	164.5	4.8	70.8
1994	101.5	5.9	147.9	5.5	68.6	21.2	2.5	25.0	2.5	84.8	122.8	5.3	172.9	5.1	71.0
1995	107.5	5.9	156.1	5.5	68.9	21.7	2.5	25.7	2.8	84.7	129.3	5.3	181.8	5.1	71.1
1996	114.0	5.9	164.8	5.5	69.1	22.3	2.8	26.3	2.8	84.7	136.3	5.3	191.2	5.1	71.3

*FORECAST BEGINS IN 1982

82-GEN-24876

CARGO TRAFFIC HISTORY AND FORECAST

TOTAL WORLD

TOTAL REPORT (RTKs IN BILLIONS)

	SCHEDULED SERVICES							NONSCHEDULED SERVICES		ALL SERVICES			
YEAR	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)	BP RTKs	ANNUAL GROWTH RATE (RTKs)	BP PCT	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)
1971	13.9	0.0	7.9	0.0	56.8	6.0	0.0	1.7	0.0	7.7	0.0	15.6	0.0
1972	15.5	12.0	8.1	15.4	58.6	6.4	7.4	1.8	9.3	8.3	7.8	17.4	11.7
1973	17.9	15.3	10.6	18.5	59.2	7.3	13.6	1.5	-20.5	8.8	5.8	19.4	11.4
1974	19.4	8.0	11.7	10.1	60.3	7.7	5.1	1.5	0.0	9.2	5.1	21.0	7.8
1975	19.6	0.9	11.8	0.8	60.3	7.7	1.9	1.7	12.2	9.5	2.9	21.3	1.7
1976	21.0	11.8	13.3	13.2	61.0	8.5	9.6	2.2	27.8	10.8	13.0	24.1	13.1
1977	24.4	11.4	15.0	12.1	61.4	9.4	10.4	2.7	21.7	12.1	12.8	27.2	12.4
1978	26.6	9.2	15.9	6.1	59.7	10.7	14.0	2.7	-0.4	13.5	10.7	29.4	8.2
1979	28.8	7.9	17.2	8.5	60.0	11.5	7.0	2.5	-6.8	14.1	4.6	31.4	6.6
1980	30.4	5.7	18.4	6.8	60.6	11.9	4.1	2.1	-18.0	14.1	0.4	32.6	3.9
1981	32.0*	5.0	19.7*	6.5	61.5	12.3*	2.7	2.1*	-1.5	14.4*	2.0	34.1*	4.6
1982**	34.1	6.7	21.3	8.4	62.5	12.8	4.0	2.2	3.8	15.0	4.0	36.4	6.5
1983	36.8	7.7	23.0	7.9	62.6	13.7	7.3	2.3	4.3	16.0	6.9	39.1	7.5
1984	39.5	7.3	24.9	8.3	63.2	14.5	5.8	2.4	3.7	16.9	5.5	41.9	7.1
1985	42.4	7.4	26.8	7.3	63.1	15.8	7.5	2.4	3.2	18.1	6.9	44.9	7.1
1986	45.7	7.7	28.7	7.1	62.8	17.0	8.7	2.6	4.7	19.6	8.1	48.3	7.5
1987	49.3	7.9	31.0	7.9	62.8	18.3	7.8	2.7	4.4	21.0	7.3	52.1	7.7
1988	53.2	7.7	33.1	6.8	62.3	20.0	9.2	2.7	2.8	22.8	8.4	56.0	7.5
1989	57.3	7.6	35.7	7.8	62.3	21.5	7.4	2.8	2.8	24.4	6.9	60.1	7.4
1990	61.7	7.7	38.5	7.9	62.5	23.1	7.4	2.9	2.9	26.1	6.9	64.7	7.5
1991	66.5	7.8	41.6	7.8	62.5	24.9	7.8	3.0	2.9	28.0	7.3	69.6	7.6
1992	71.7	7.7	44.7	7.5	62.3	27.0	8.0	3.1	2.9	30.1	7.5	74.8	7.5
1993	77.2	7.7	48.1	7.5	62.3	29.1	7.9	3.2	3.0	32.3	7.4	80.5	7.5
1994	83.2	7.7	51.8	7.6	62.2	31.4	7.9	3.3	3.0	34.7	7.4	86.8	7.5
1995	89.7	7.7	55.7	7.6	62.2	33.9	7.9	3.4	3.1	37.3	7.4	93.1	7.5
1996	96.8	7.6	60.0	7.8	62.1	36.5	7.7	3.5	3.1	40.1	7.2	100.1	7.5

*ESTIMATED VALUES FOR NON-U.S. AIRLINES
**FORECAST BEGINS IN 1982

80-GEN-24880

CARGO TRAFFIC HISTORY AND FORECAST

TOTAL U.S.

TOTAL REPORT (RTKs IN MILLIONS)

	SCHEDULED SERVICES							NONSCHEDULED SERVICES		ALL SERVICES			
YEAR	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)	BP RTKs	ANNUAL GROWTH RATE (RTKs)	BP PCT	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)
1971	7.5	0.0	3.5	0.0	46.8	4.0	0.0	1.5	0.0	5.6	0.0	9.1	0.0
1972	8.0	6.1	3.9	10.3	48.7	4.1	2.3	1.6	4.3	5.7	2.9	9.7	5.7
1973	8.8	9.8	4.3	10.0	48.8	4.5	9.5	0.9	-43.5	5.4	-5.7	9.7	0.0
1974	8.9	1.7	4.4	3.8	48.8	4.5	-0.2	0.7	-21.4	5.2	-3.8	9.7	-0.4
1975	8.6	-3.5	4.4	-1.2	50.9	4.2	-6.7	0.6	-16.3	4.8	-7.2	9.2	-4.5
1976	9.1	5.6	4.8	8.7	52.4	4.3	2.4	0.6	13.0	5.0	3.7	9.8	6.1
1977	9.9	9.1	5.3	11.8	53.7	4.6	9.1	1.0	51.9	5.7	13.0	11.0	12.4
1978	10.3	3.5	5.1	-3.8	49.9	5.1	12.2	1.0	-1.9	6.2	9.5	11.4	3.8
1979	10.6	3.2	5.3	3.5	50.8	5.3	2.9	1.0	-4.5	6.3	1.7	11.7	2.5
1980	10.6	-0.7	5.3	-0.3	50.2	5.2	-1.0	1.0	1.5	6.3	-0.6	11.6	-0.5
1981	11.0	4.0	5.4	3.1	49.7	5.5	4.9	1.0	1.5	6.6	4.3	12.0	3.8
1982*	11.6	5.0	5.7	5.1	49.8	5.8	4.9	1.1	5.8	6.9	5.1	12.7	5.1
1983	12.2	5.9	6.0	4.8	49.2	6.2	7.1	1.1	6.0	7.4	6.9	13.4	6.0
1984	13.0	5.8	6.3	5.0	48.8	6.6	6.6	1.2	6.1	7.9	6.5	14.2	5.8
1985	13.7	5.8	6.6	4.5	48.2	7.1	7.1	1.3	6.1	8.4	6.9	15.1	5.8
1986	14.6	6.0	7.0	5.4	48.0	7.5	6.5	1.4	6.2	9.0	6.4	16.0	6.0
1987	15.5	6.4	7.3	5.2	47.4	8.1	7.6	1.4	5.5	9.6	7.2	17.0	6.3
1988	16.4	5.9	7.7	4.9	47.0	8.7	6.9	1.5	2.8	10.2	6.2	18.0	5.7
1989	17.4	5.7	8.1	4.8	46.5	9.3	6.5	1.5	2.9	10.8	6.0	19.0	5.5
1990	18.4	5.8	8.5	5.2	46.3	9.9	6.3	1.6	3.0	11.5	5.9	20.0	5.6
1991	19.6	6.4	8.9	4.9	45.6	10.6	7.7	1.6	3.0	12.3	7.0	21.3	6.1
1992	20.8	6.2	9.3	4.8	45.0	11.4	7.3	1.7	3.1	13.1	6.8	22.5	5.9
1993	22.1	6.1	9.8	4.9	44.5	12.2	7.1	1.7	3.2	14.0	6.6	23.9	5.9
1994	23.4	6.0	10.3	4.9	44.1	13.1	6.8	1.8	3.3	14.9	6.4	25.3	5.8
1995	24.8	6.0	10.8	5.0	43.6	14.0	6.8	1.9	3.3	15.9	6.4	26.7	5.8
1996	26.4	6.0	11.4	5.0	43.2	14.9	6.8	1.9	3.4	16.9	6.4	28.3	5.9

*FORECAST BEGINS IN 1982

82-GEN-24873

CARGO TRAFFIC HISTORY AND FORECAST

TOTAL NON-U.S.

TOTAL REPORT (RTKs IN BILLIONS)

	SCHEDULED SERVICES							NONSCHEDULED SERVICES		ALL SERVICES			
YEAR	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)	BP RTKs	ANNUAL GROWTH RATE (RTKs)	BP PCT	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)
1971	6.3	0.0	4.3	0.0	68.8	1.9	0.0	0.1	0.0	2.1	0.0	6.4	0.0
1972	7.5	19.1	5.2	19.7	69.2	2.3	17.9	0.2	68.5	2.5	21.1	7.7	20.1
1973	9.1	21.2	6.3	21.4	69.3	2.8	20.7	0.5	***	3.3	32.1	9.7	24.9
1974	10.4	14.1	7.2	14.4	69.4	3.1	13.7	0.8	49.2	4.0	19.6	11.2	16.2
1975	10.9	4.7	7.4	2.1	67.7	3.5	10.6	1.1	37.4	4.6	16.2	12.0	7.1
1976	12.7	16.7	8.5	15.9	67.2	4.1	18.4	1.5	35.8	5.7	22.7	14.3	18.6
1977	14.4	13.1	9.6	12.2	66.7	4.8	14.5	1.6	6.4	6.4	12.6	16.1	12.4
1978	16.3	13.1	10.7	11.7	65.9	5.5	15.8	1.6	0.5	7.2	11.8	18.0	11.8
1979	18.1	10.9	11.9	11.0	65.9	6.1	10.8	1.5	-6.6	7.7	6.7	19.6	9.2
1980	19.8	9.6	13.1	10.1	66.3	6.7	8.5	1.1	-27.5	7.8	1.2	21.8	6.6
1981	20.9*	5.6	14.2*	7.9	67.7	6.7*	1.0	1.0*	-4.3	7.8*	0.2	22.0*	5.0
1982**	22.5	7.6	15.5	9.6	68.8	6.9	3.3	1.1	1.7	8.1	3.1	23.7	7.3
1983	24.5	8.6	17.0	9.8	68.3	7.5	7.5	1.1	2.6	8.6	6.8	25.6	8.3
1984	26.5	8.1	18.6	9.5	70.2	7.9	5.1	1.1	1.1	9.0	4.6	27.6	7.8
1985	28.7	8.1	20.1	8.3	70.2	8.5	7.9	1.1	-0.0	9.6	6.9	29.8	7.8
1986	31.1	8.5	21.7	7.6	69.7	9.4	10.5	1.1	3.0	10.6	9.6	32.3	8.3
1987	33.8	8.5	23.6	8.8	69.9	10.1	8.0	1.2	3.0	11.4	7.4	35.0	8.3
1988	36.7	8.5	25.4	7.4	69.1	11.3	11.1	1.2	2.8	12.5	10.2	37.9	8.3
1989	39.8	8.5	27.6	8.7	69.3	12.2	8.1	1.2	2.8	13.5	7.6	41.1	8.3
1990	43.2	8.5	30.0	8.7	69.4	13.2	8.2	1.3	2.8	14.5	7.7	44.6	8.3
1991	46.9	8.4	32.6	8.7	69.5	14.3	7.9	1.3	2.7	15.6	7.4	48.3	8.3
1992	50.8	8.3	35.3	8.3	69.4	15.5	8.5	1.4	2.7	16.9	8.0	52.3	8.2
1993	55.1	8.3	38.2	8.2	69.4	16.8	8.5	1.4	2.8	18.3	8.1	56.6	8.2
1994	59.8	8.4	41.4	8.3	69.3	18.3	8.6	1.4	2.8	19.8	8.1	61.2	8.2
1995	64.8	8.4	44.9	8.3	69.3	19.9	8.6	1.5	2.8	21.4	8.2	66.3	8.3
1996	70.2	8.2	48.6	8.2	69.3	21.5	8.2	1.5	2.8	23.1	7.8	71.7	8.1

*ESTIMATED VALUE – ACTUAL NOT AVAILABLE

**FORECAST BEGINS IN 1982

***GROWTH RATE EXCEEDS 100 PERCENT (OR IS -100)

82-GEN-24871

CARGO TRAFFIC HISTORY AND FORECAST

MAJORS

TOTAL REPORT (RTKs IN BILLIONS)

	SCHEDULED SERVICES							NONSCHEDULED SERVICES		ALL SERVICES			
YEAR	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)	SP RTKs	ANNUAL GROWTH RATE (RTKs)	SP PCT	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)
1971	5.9	0.0	3.4	0.0	57.7	2.5	0.0	0.5	0.0	3.1	0.0	6.0	0.0
1972	6.3	5.5	3.8	10.3	60.2	2.5	-0.9	0.5	-0.9	3.1	-2.7	6.9	4.0
1973	6.7	7.0	4.2	10.3	62.1	2.5	2.0	0.2	-61.7	2.8	-8.2	7.0	1.9
1974	6.8	1.2	4.3	3.6	63.5	2.4	-2.9	0.2	-25.7	2.7	-4.9	7.0	0.1
1975	6.5	-4.4	4.2	-1.3	65.7	2.2	-10.0	0.1	-15.2	2.6	-10.4	6.7	-4.8
1976	6.9	6.3	4.6	8.8	67.2	2.2	1.5	0.1	-10.3	2.6	-0.0	7.1	5.6
1977	7.4	10.1	5.2	12.0	68.4	2.4	6.0	0.1	-11.4	2.5	4.9	7.7	9.6
1978	7.5	-1.9	5.0	-4.1	66.9	2.4	2.7	0.1	-21.8	2.5	1.5	7.6	-2.2
1979	7.6	1.7	5.2	3.5	68.1	2.4	-1.0	**	-51.0	2.4	-3.0	7.6	1.0
1980	7.3	-3.7	5.1	-1.8	70.0	2.2	-8.5	**	22.7	2.2	-6.8	7.4	-3.6
1981	7.5	2.5	5.2	1.5	69.3	2.3	4.8	**	-60.2	2.3	3.3	7.5	2.0
1982*	7.9	4.8	5.4	5.8	68.5	2.4	4.3	**	3.0	2.4	4.3	7.9	4.8
1983	8.2	4.7	5.7	4.7	68.5	2.5	4.8	**	3.0	2.5	4.8	8.3	4.7
1984	8.6	4.8	6.0	4.9	68.5	2.6	4.7	**	3.0	2.6	4.7	8.7	4.8
1985	9.0	4.5	6.3	4.5	69.5	2.7	4.6	**	3.0	2.6	4.5	9.1	4.5
1986	9.5	5.2	6.6	5.3	69.6	2.9	4.8	**	3.7	2.9	4.8	9.5	5.2
1987	10.0	5.0	6.9	5.1	69.7	3.0	4.8	**	3.7	3.0	4.6	10.0	5.0
1988	10.5	4.9	7.3	4.9	69.7	3.1	4.9	**	3.7	3.2	4.9	10.5	4.9
1989	11.0	4.8	7.6	4.8	69.7	3.3	4.7	**	3.8	3.3	4.7	11.0	4.7
1990	11.6	5.1	8.0	5.1	69.7	3.5	5.2	**	3.8	3.5	5.2	11.6	5.1
1991	12.1	5.0	8.4	4.7	69.5	3.7	5.0	**	3.8	3.7	5.4	12.2	5.0
1992	12.7	4.9	8.8	4.7	69.4	3.9	5.5	**	3.8	3.9	5.5	12.8	4.9
1993	13.4	4.9	9.3	4.8	69.3	4.1	5.2	**	3.8	4.1	5.2	13.6	4.9
1994	14.1	5.1	9.7	4.8	69.2	4.3	5.5	**	3.9	4.3	5.5	14.1	5.1
1995	14.8	5.1	10.2	4.9	69.0	4.5	5.6	**	3.9	4.6	5.5	14.8	5.1
1996	15.6	5.1	10.7	4.8	68.8	4.6	5.6	**	3.9	4.8	5.6	15.6	5.1

*FORECAST BEGINS IN 1982
**LESS THAN 50 MILLION RTKs

02-GEN-24877

CARGO TRAFFIC HISTORY AND FORECAST

NATIONALS

TOTAL REPORT (RTKs IN MILLIONS)

	SCHEDULED SERVICES							NONSCHEDULED SERVICES		ALL SERVICES			
YEAR	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)	SP RTKs	ANNUAL GROWTH RATE (RTKs)	SP PCT	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	FRTR RTKs	ANNUAL GROWTH RATE (RTKs)	TOTAL RTKs	ANNUAL GROWTH RATE (RTKs)
1971	1.5	0.0	0.1	0.0	3.7	1.4	0.0	0.7	0.0	2.2	0.0	2.3	0.0
1972	1.7	0.0	0.1	11.2	5.9	1.6	7.9	0.9	17.0	2.4	10.0	2.5	10.0
1973	2.0	29.1	0.1	1.0	5.0	1.9	21.3	0.4	-44.9	2.4	-1.4	2.5	-1.3
1974	2.1	3.4	0.1	13.1	5.4	2.0	2.9	0.3	-29.2	2.3	-1.5	2.5	-0.9
1975	2.1	-0.4	0.1	0.0	5.5	2.0	-0.4	0.3	-6.5	2.3	-1.4	2.4	-1.3
1976	2.1	3.3	0.1	1.0	5.4	2.0	3.4	0.4	38.2	2.5	8.5	2.6	8.2
1977	2.3	6.1	0.1	3.2	5.2	2.2	6.3	0.8	72.3	3.0	16.7	3.1	18.0
1978	2.8	21.7	0.1	6.4	4.6	2.7	22.6	0.8	8.7	3.6	18.8	3.7	18.3
1979	3.0	7.3	0.1	4.9	4.5	2.9	7.4	0.9	9.4	3.8	5.7	3.9	5.8
1980	3.2	7.0	0.1	26.8	5.3	3.0	6.8	0.9	3.8	4.0	5.3	4.1	6.0
1981	3.4	7.4	0.2	51.4	7.5	3.2	5.9	0.9	2.8	4.1	4.5	4.4	6.4
1982*	3.9	5.5	0.2	7.1	7.8	3.4	5.4	1.0	6.2	4.4	5.8	4.7	5.7
1983	4.0	6.5	0.2	6.0	7.4	3.7	6.7	1.0	6.2	4.7	6.2	5.0	6.8
1984	4.3	7.7	0.3	6.3	7.3	4.0	7.9	1.1	6.2	5.1	7.5	5.4	7.4
1985	4.6	6.5	0.3	4.9	7.1	4.3	6.8	1.2	6.2	5.5	6.2	5.9	6.8
1986	5.0	7.5	0.3	7.2	7.0	4.6	7.6	1.2	6.2	5.9	7.3	6.3	7.3
1987	5.5	9.1	0.3	5.8	6.8	5.1	9.4	1.3	5.5	6.5	9.5	6.8	8.4
1988	5.9	7.8	0.3	5.1	6.6	5.5	8.8	1.4	2.6	6.9	6.9	7.3	6.8
1989	6.3	7.4	0.4	4.4	6.5	5.9	7.8	1.4	2.7	7.4	6.8	7.8	6.5
1990	6.8	7.8	0.4	7.3	6.5	6.3	7.8	1.4	2.7	7.8	6.2	8.3	6.2
1991	7.4	8.8	0.4	6.7	6.3	6.8	8.8	1.5	2.8	8.4	7.8	8.9	7.7
1992	8.0	8.2	0.5	6.4	6.3	7.5	8.3	1.5	2.9	9.1	7.3	9.6	7.3
1993	8.6	8.0	0.5	6.3	6.1	8.1	8.1	1.6	3.0	9.7	7.2	10.3	7.1
1994	9.3	7.5	0.5	6.4	6.1	8.7	7.5	1.6	3.0	10.4	6.9	11.0	6.9
1995	10.0	7.4	0.6	6.4	6.0	9.4	7.4	1.7	3.1	11.1	6.7	11.7	6.7
1996	10.7	7.4	0.6	6.2	6.0	10.1	7.5	1.7	3.2	11.9	6.8	12.5	6.8

*FORECAST BEGINS IN 1982

02-GEN-24877

APPENDIX E
AIRCRAFT DETAIL

TOTAL WORLD

PASSENGER AIRCRAFT REQUIREMENT BY GENERIC CLASS

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
SHORT RANGE 110																	
PERMANENTLY RETIRED		(94)	(55)	(93)	(141)	(149)	(177)	(154)	(123)	(151)	(107)	(104)	(90)	(90)	(54)	(49)	(1584)
ORDERS		117	55	6	6												181
OPTIONS		6	9	7	7	7	3	9	3								35
GENERIC AIRCRAFT		0	0	16	14	29	58	74	78	107	87	66	72	62	58	48	752
END-OF-YEAR TOTAL	1827	1845	1854	1913	1886	1962	1479	1404	1364	1320	1300	1262	1244	1236	1240	1231	
SHORT RANGE 160																	
PERMANENTLY RETIRED		(93)	(102)	(111)	(97)	(93)	(94)	(89)	(99)	(104)	(91)	(79)	(91)	(93)	(78)	(79)	(1354)
ORDERS		98	41	38	22	11	15	10									199
OPTIONS		0	12	17	12	13	15	7									77
GENERIC AIRCRAFT		0	14	2	27	104	139	148	218	199	197	197	194	188	183	189	1978
END-OF-YEAR TOTAL	1983	1936	1921	1565	1529	1572	1657	1739	1858	1953	2059	2181	2284	2389	2494	2583	
MEDIUM RANGE 200																	
PERMANENTLY RETIRED		(31)	(6)	(19)	(16)	(7)	(6)	(3)	(4)	(3)	(5)						(109)
ORDERS		31	85	87	31	14	7	3	4								262
OPTIONS		0	5	10	53	85	46	25	0	0	0	4					230
GENERIC AIRCRAFT		1	4	5	13	25	19	33	40	38	40	43	40	40	44	37	426
END-OF-YEAR TOTAL	110	111	190	282	363	460	526	581	627	670	722	769	817	857	901	938	
MEDIUM RANGE 250																	
PERMANENTLY RETIRED		(6)	(3)	(5)	(1)	(6)	(5)	(3)	(3)	(6)	(10)	(6)	(3)	(1)	(1)	(3)	(64)
ORDERS		65	25	21	2												114
OPTIONS		1	10	17	21	14	1	0	1								65
GENERIC AIRCRAFT		0	0	3	0	3	4	29	30	25	32	40	45	42	50	51	380
END-OF-YEAR TOTAL	547	607	648	676	704	721	721	747	794	809	831	871	913	954	1003	1051	
LONG RANGE 270																	
PERMANENTLY RETIRED		(59)	(57)	(51)	(54)	(29)	(18)	(10)	(3)	(10)	(6)	(1)	(4)	(3)	(3)	(1)	(243)
ORDERS		10	5	1													24
OPTIONS		0	6	6	0	2											14
GENERIC AIRCRAFT		0	0	17	16	17	20	26	28	22	12	13	10	15	14	13	242
END-OF-YEAR TOTAL	648	601	545	518	478	463	484	500	519	531	530	547	553	560	574	586	
LONG RANGE 400																	
PERMANENTLY RETIRED		(6)	(3)	(3)	(3)	(3)	(1)	(1)	(3)	(1)	(4)	(19)	(13)	(17)	(27)	(14)	(99)
ORDERS		23	16	9	2	1											51
OPTIONS		0	10	10	4	5	3	2	1	0	1						36
GENERIC AIRCRAFT		0	2	3	0	10	12	35	40	42	53	79	74	85	84	69	604
END-OF-YEAR TOTAL	407	430	456	469	484	516	530	567	606	646	696	756	818	887	944	999	
LONG RANGE 500																	
GENERIC AIRCRAFT	0	0	0	0	0	0	0	0	0	0	12	19	19	24	21	23	117
END-OF-YEAR TOTAL	0	0	0	0	0	0	0	0	0	0	12	31	48	73	94	117	
PERMANENTLY RETIRED		(291)	(233)	(251)	(319)	(258)	(291)	(260)	(236)	(280)	(223)	(199)	(200)	(167)	(169)	(137)	(3020)
ORDERS		387	229	169	65	28	22	10	4								831
OPTIONS		1	52	82	92	106	71	28	13	0	0	4					457
GENERIC AIRCRAFT		1	20	46	84	194	271	343	443	433	442	457	481	447	454	422	4089
TOTAL FLEET	5232	5250	5317	5334	5258	5324	5387	5538	5760	5932	6156	6420	6670	6906	7250	7515	

*INCLUDES CONVERTIBLE FREIGHTER AIRCRAFT USED IN PASSENGER TRAFFIC

TOTAL U.S.

JET PASSENGER AIRCRAFT REQUIREMENT BY GENERIC CLASS

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
SHORT RANGE 110																
ORDERS	41	19	3	7												70
OPTIONS					5	5	5	5								20
GENERIC			8	7	10	23	20	13	28	34	21	22	16	18	14	234
TOTAL SR-110	41	19	11	14	15	28	25	18	28	34	21	22	16	18	14	324
SHORT RANGE 160																
ORDERS	32	23	27	13	11	15	16									137
OPTIONS		5	12	9	6	6	6									44
GENERIC		5	0	22	80	79	84	104	101	80	100	102	95	100	88	1040
TOTAL SR-160	32	33	39	44	97	100	106	104	101	80	100	102	95	100	88	1221
MEDIUM RANGE 200																
ORDERS	22	46	34	3												105
OPTIONS				24	32	21	8									85
GENERIC					5	5	9	9	12	12	18	15	12	14	14	125
TOTAL MR-200	22	46	34	27	37	26	17	9	12	12	18	15	12	14	14	315
MEDIUM RANGE 250																
ORDERS	14	6														20
OPTIONS		2	8	13	10											33
GENERIC							14	18	19	12	6	4	14	23	25	135
TOTAL MR-250	14	8	8	13	10		14	18	19	12	6	4	14	23	25	188
LONG RANGE 270																
ORDERS																0
OPTIONS		3	3													6
GENERIC									4	2	3	3	4	5	2	23
TOTAL LR-270		3	3						4	2	3	3	4	5	2	29
LONG RANGE 400																
ORDERS		1	1													2
OPTIONS		3	3													6
GENERIC						7	13	20	18	20	28	26	26	25	20	203
TOTAL LR-400		4	4			7	13	20	18	20	28	26	26	25	20	211
LONG RANGE 500																
GENERIC										6	9	4	7	5	5	36
TOTAL																
ORDERS	109	95	65	23	11	15	16									334
OPTIONS		13	26	46	53	32	19	5								194
GENERIC		5	8	29	95	114	140	164	182	166	185	176	174	190	168	1796
TOTAL FLEET	109	113	99	98	159	161	175	169	182	166	185	176	174	190	168	2324

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TOTAL NON-U.S.

JET PASSENGER AIRCRAFT REQUIREMENT BY GENERIC CLASS

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
SHORT RANGE 110																
ORDERS	71	36	3	1												111
OPTIONS		9	2	2	2											15
GENERIC			8	7	19	36	54	65	79	53	45	56	36	40	26	518
TOTAL SR-110	71	45	13	10	21	36	54	65	79	53	45	50	36	40	26	644
SHORT RANGE 160																
ORDERS	26	18	9	9												62
OPTIONS		7	6	3	7	10	1									33
GENERIC		9	2	5	24	59	64	114	98	117	97	92	93	83	81	938
TOTAL SR-160	26	34	16	17	31	69	65	114	98	117	97	92	93	83	81	1033
MEDIUM RANGE 200																
ORDERS	9	39	53	28	14	7	3	4								157
OPTIONS		5	10	29	33	25	17	6	8	8	4					145
GENERIC	1	4	5	13	20	14	21	31	26	37	25	33	28	30	23	311
TOTAL MR-200	10	48	68	70	67	46	41	41	34	45	29	33	28	30	23	613
MEDIUM RANGE 250																
ORDERS	51	20	21	2												94
OPTIONS	1	8	9	8	4	1	0	1								32
GENERIC			3	6	3	4	15	21	6	20	34	41	28	27	26	234
TOTAL MR-250	52	28	33	16	7	5	15	22	6	20	34	41	28	27	26	360
LONG RANGE 270																
ORDERS	18	5	1													24
OPTIONS		3	3		2											8
GENERIC			17	16	17	39	26	28	18	10	10	7	11	9	11	219
TOTAL LR-270	18	8	21	16	19	39	26	28	18	10	10	7	11	9	11	251
LONG RANGE 400																
ORDERS	23	15	8	2	1											49
OPTIONS		7	7	4	5	3	2	1	0	1						30
GENERIC		2	3	8	16	5	23	20	24	33	51	48	60	59	48	401
TOTAL LR-400	23	24	18	14	22	8	25	21	24	34	51	48	60	59	48	480
LONG RANGE 600																
GENERIC										6	10	14	17	16	18	81
TOTAL																
ORDERS	198	133	95	42	15	7	3	4								497
OPTIONS	1	39	36	46	53	39	20	8	8	9	4					263
GENERIC	1	15	38	55	99	157	203	279	251	276	272	285	273	264	234	2702
TOTAL FLEET	200	187	169	143	167	203	226	291	260	285	276	285	273	264	234	3462

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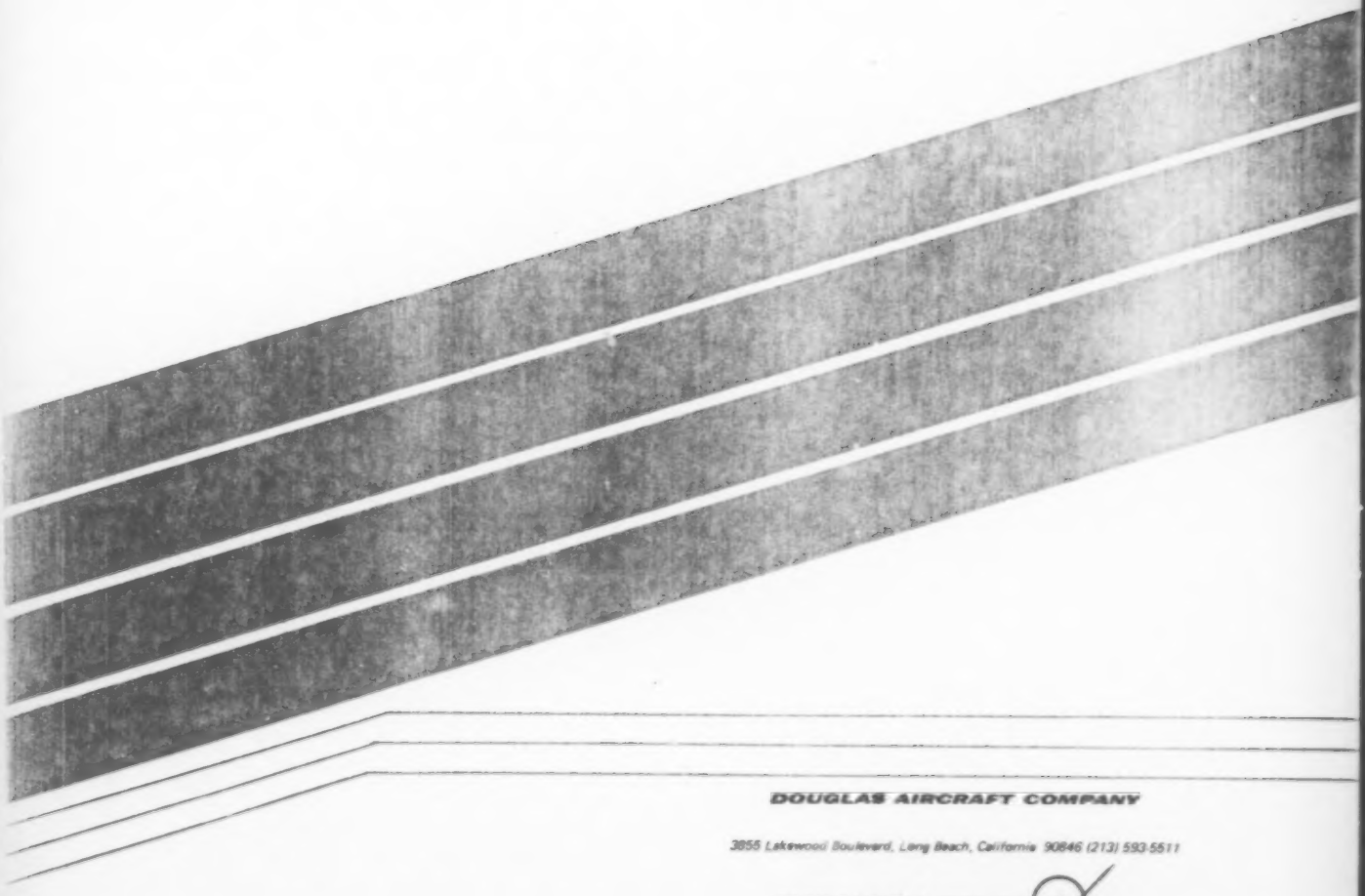
REPORT NO. C1-802-7154
JUNE 1982



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PRINTED IN U.S.A. 6/82 S-60553